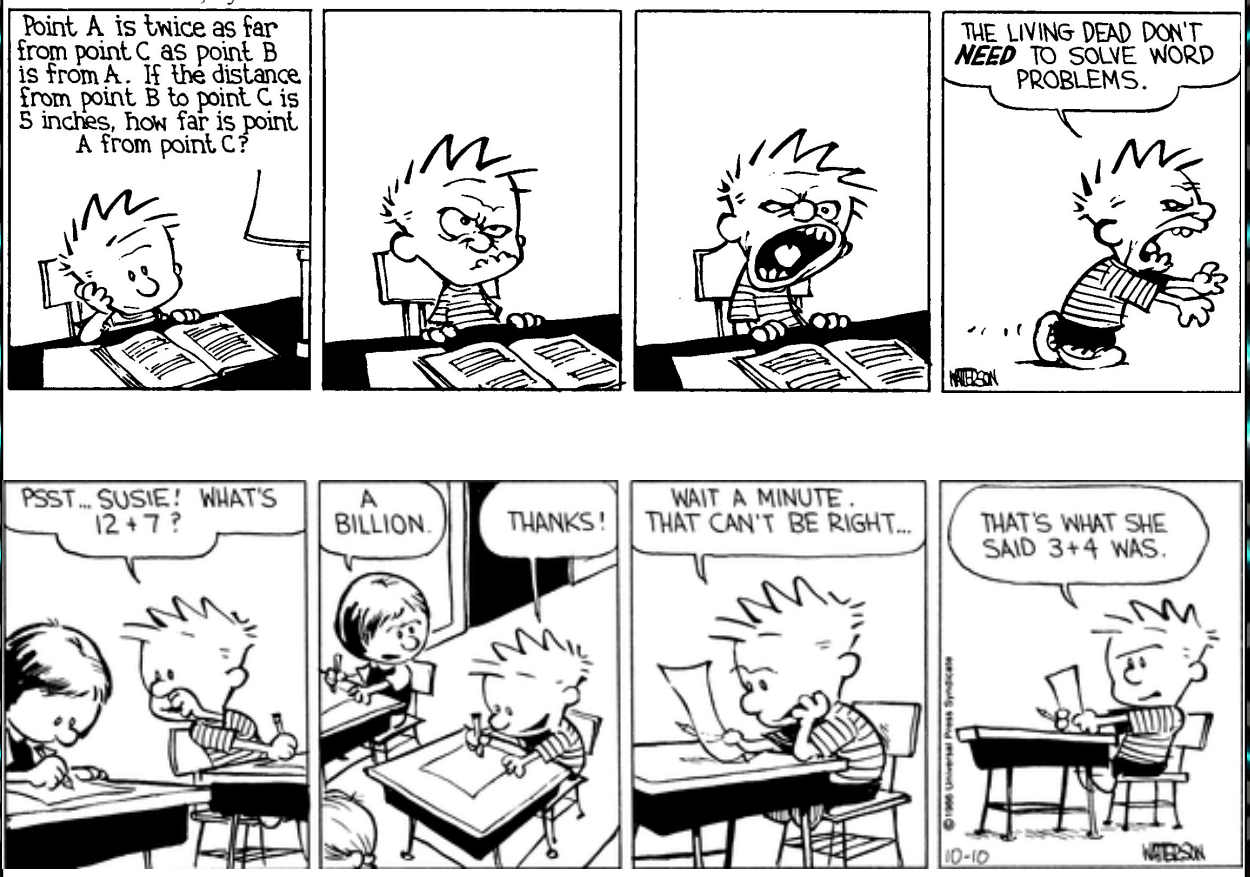
UCLA *Mathematics*

COLLEGE OF LETTERS AND SCIENCE

Physical Sciences

Calvin & Hobbes, by Bill Waterson



Undergraduate Handbook
2016-2017

Student Services

Student Services Office
6356 Math Science Building
(310) 206 - 1286

Undergraduate Math Advisor:
Connie Jung
Lucia Saavedra
Dylan Sarnowski

Hours of Operation:
Monday - Friday
8:00 a.m. - 11:50 a.m.
1:00 p.m. - 5:00 p.m.

Website:
http://www.math.ucla.edu/ugrad

Message Center:
https://sa.ucla.edu/MessageCenter/OneStop/Home/PostMessage?deptCode=MATH

Email:
ugrad@math.ucla.edu

Mailing Address:
UCLA Department of Mathematics
520 Portola Plaza
Box #951555
Los Angeles, CA 90095-1555

The Student Services Office is open to answer your questions regarding:

- Academic Difficulty
- Course Planning
- Career Planning
- Course Transfers
- Departmental Programs
- Enrollment Concerns
- Majors and Specializations
- Student Organizations

Academic Advising Schedule:

Week 0 - 2
Drop-in Advising*
M-F 9:00 a.m. - 11:30 a.m. &
1:00 p.m. - 4:00 p.m.
(priority given to enrollment issues)

Week 3 - Finals
Drop-in Advising*
M-F 9:00 a.m. - 11:00 a.m. &
1:00 p.m. - 4:00 p.m.

*Drop-in times vary. Please contact the office at (310) 206-1286 or stop by MS 6356 for actual hours.

FREQUENTLY ASKED QUESTIONS

1. Who should I go to regarding my GE or university requirements?

Questions regarding university or college requirements should be directed to the student's designated college counseling office (College of Letters and Science, Honors, AAP or Athletics). For more information, refer to their website at http://www.ugeducation.ucla.edu/counseling/.

2. Where can I obtain information about courses offered through other departments (non Math/PIC courses)?

For questions in regards to non Math/PIC course syllabus, prerequisites, enrollment restrictions, transferability, etc., students should check with the department that offers the course. The Mathematics Department does not have control over enrollment in courses outside of math and PIC. Contact information for other departments is available at http://www.ucla.edu/pdf/ucla-campus-map.pdf.

3. If I took an AP Calculus exam, what math course should I enroll in at UCLA?

Only students that receive a score of 3, 4 or 5 on the AP Calculus AB or BC exams will receive college credit as indicated in the following chart:

UCLA Course Credit for AP Calculus Test:		
Score	**AB Exam**	**BC Exam**
5	Credit for Math 31A **(Enroll in Math 31B/3B)**	Credit for Math 31A, 31B **(Enroll in Math 32A/3C)**
4	Credit for 4 units of calculus	Credit for Math 31A and 4 units of calculus **(Enroll in Math 31B/3B)**
3	Credit for 4 units of calculus	Credit for 8 units of calculus
2	No college credit	No college credit
1	No college credit	No college credit

4. Do I need to take the Math Diagnostic Test?

All students wishing to enroll in Math 1, Math 3A or Math 31A are required to take the Math Diagnostic Test. Please contact the Student Services Office in MS 6356 if you are not sure whether you need to take the exam.

5. Can I retake the Math Diagnostic Test? How often is the test offered?

Yes. Students are only allowed **two (2) attempts** on the diagnostic exam per term. The second score, for better or worse, will be placed into the student's record. Be aware that the test and makeup exam is given during specific periods of time. Please refer to our website at www.math.ucla.edu/ugrad/diag-testdates for specific exam times and locations. If students are unable to reach a desired score after the retake, students will have to wait until the next quarter the exam is offered to take the test again.

FREQUENTLY ASKED QUESTIONS

6. Does my Advanced Level General Certificate of Education, commonly referred to as an A-Level exam, count for anything?

Credit awarded by UCLA as a result of A-Level exams is subject to change without notice. In order to receive credit for math equivalences, the A-Level exams must be passed with "C" grades or better. Please consult with the Undergraduate Admission Office at https://www.admission.ucla.edu/ for more information.

Possible UCLA Course Credit for CIE A-Level Exams:			
	A	**B**	**C**
Pure Mathematics 1 (P1) **+** Pure Mathematics 3 (P3**) +** Mechanics 1 (M1) **+** Probability and Statistics 1 (S1)	Math 1, Math 31A	Math 1, Math 31A	Math 1
Pure Mathematics 1 (P1) **+** Pure Mathematics 3 (P3) **+** Mechanics 1 (M1) **+** Mechanics 2 (M2)	Math 1, Math 31A	Math 1, Math 31A	Math 1
Pure Mathematics 1 (P1) **+** Pure Mathematics 3 (P3) **+** Probability and Statistics 1 (S1) **+** Probability and Statistics 2 (S2)	Math 1, Math 31A	Math 1, Math 31A	Math 1

Possible UCLA Course Credit for Singapore A-Level Exams:			
	A	**B**	**C**
Higher 2 Mathematics: (P1) **+** (P2)	Math 1, Math 31A	Math 1, Math 31A	Math 1

Possible UCLA Course Credit for Edexcel A-Level Exams:			
	A	**B**	**C**
GCE Mathematics (9371): C1, C2, C3, C4	Math 1, Math 31A	Math 1, Math 31A	Math 1
GCE Further Mathematics (9372): FP1 and FP2	12.0 title units	12.0 title units	12.0 title units
GCE Further Mathematics (9372): FP1 and FP3	12.0 title units	12.0 title units	12.0 title units
GCE Pure Mathematics (9373): C1, C2, C3, C4, FP1	Math 1, Math 31A	Math 1, Math 31A	Math 1

References:
Mathematics (9709): http://www.cie.org.uk/qualifications/academic/uppersec/alevel/subject?assdef_id=755
Mathematics - Further (9231): http://www.cie.org.uk/qualifications/academic/uppersec/alevel/subject?assdef_id=756
Mathematics (BES) (9280): http://www.cie.org.uk/qualifications/academic/uppersec/alevel/subject?assdef_id=1096
Mathematics (9740): http://www.seab.gov.sg/aLevel/2013Syllabus/9740_2013.pdf
http://www.edexcel.com/migrationdocuments/GCE%20New%20GCE/UA024850%20GCE%20in%20Mathematics%20issue%202%20180510.pdf

FREQUENTLY ASKED QUESTIONS

7. What credit will I receive with my International Baccalaureate (IB) Higher Level Exam?

UCLA awards college credit for higher level (HL) exams only. Credit awarded by UCLA as a result of IB exams is subject to change without notice. Course descriptions for each IB subject are reviewed by UCLA on a yearly basis. IB examinations, AP examinations, and college courses taken prior to or after enrolling at UCLA may be duplicative. In these cases students will be awarded credit for only one.

A score of 5-7 on the IB higher level Math test will grant students 4.0 units of Math 1 and credit for 4.0 units of calculus only (https://www.admission.ucla.edu/Prospect/IBCreditLS.htm). Please consult with the Undergraduate Admission Office at https://www.admission.ucla.edu/ for more information.

8. What is a typical course load for math students?

All math majors should be taking at least one math class per quarter for the first two years. By their junior year, students should be taking two to three major courses per quarter. These are just recommendations. Schedules and course load will vary depending on students' interests and level.

9. How big are the math courses?

Lower division courses usually have a capacity of 210 students in each the lecture (35 students per discussion). Upper division courses usually have a capacity of 40 students in each lecture.

10. What if a math course I planned to take is full during my enrollment appointment?

If there are any open sections of that course offered at a different time, it is best to try to rearrange your schedule and enroll in the open section. Otherwise, you should add yourself to the waitlist. If both the course and waitlist are full, you can continue to check the enrollment numbers and try to add yourself to the waitlist if a space becomes available.

For upper division math courses only, you can place your name on the unofficial waitlist (http://www.math.ucla.edu/ugrad/unofficial-waitlist) that will not start until the first day of class. There are no guarantees on this unofficial waitlist - PTE numbers will be given out if there is room in the class and based on priority.

If you are not enrolled in the class by the first day of instruction, you can stop by MS 6356 or email ugrad@math.ucla.edu for more information. It is always a good idea to have a back-up plan, as enrollment in any course is not guaranteed and you may have to take the course the next time it is offered.

11. Can I take a "Preparation for the Major" or "Major" course pass/no pass?

No. All required courses for the major, minor, or specialization in computing must be taken for a letter grade.

12. If I received a "C–" or lower in my math class, may I repeat it?

If the course you are planning to repeat is a prerequisite of a more advanced course, then you must repeat the prerequisite course prior to enrolling in the next course. For example, a student wishing to retake 31A should do so prior to enrolling in 31B. In addition, please refer to the College of Letters and Science website at http://www.ugeducation.ucla.edu/counseling/handouts/RepeatPolicy.pdf for more information about regulations/rules for repeating courses.

FREQUENTLY ASKED QUESTIONS

13. How and when may I drop a course?

College of Letters and Science Drop Period	Type	Method	Fee	Transcript Notation
Weeks 1-2 (all courses)	Drop	URSA	No fee	No transcript notation
Weeks 3-4 (non-impacted courses)	Drop	URSA	$5	No transcript notation
Weeks 3-10 (impacted courses)	Late Drop	Petition*	$20	Transcript notation
Weeks 5-7 (non-impacted courses)	Late Drop	URSA	$20	Transcript notation
Weeks 8-10 (non-impacted courses)	Restricted Drop (maximum 3 drops)	Petition*	$35	Transcript notation
After week 10	Retroactive Drop	Petition*	$50	Transcript notation

Petitions are available in Murphy Hall A-316

Warning:

- If you are on financial aid and plan to drop a course, it is important that you also go to the Financial Aid Office to find out the consequences of your actions.
- International students should first visit the Dashew Center (http://www.internationalcenter.ucla.edu/) first before dropping below 12.0 units.

14. How can I find a tutor?

The following are some of the most frequently used tutoring services on campus:

The Student Math Center offers individual and group homework assistance for lower division math courses. The center is located in MS 3974. Hours of operation are available at http://www.math.ucla.edu/ugrad/smc.

The Academic Advancement Program (AAP) is located in Campbell Hall 1232 and offers free tutoring to lower division math and sciences courses to students whose academic profiles and personal backgrounds may impact their university experience, their retention and graduation from UCLA. To determine your eligibility, visit their office or refer to their website at http://www.aap.ucla.edu/index.html.

Engineering and Mathematical Sciences Library (EMS) is located in Boelter Hall 8270 and offers various academic resources to current UCLA students. For more information, visit their website at http://www.library.ucla.edu/libraries/sel/science-engineering-library.

Private (Fee Based) Tutoring is available from current graduate students in the Mathematics Department. Please refer to our website at http://www.math.ucla.edu/people/tutors/ for a list of available tutors. For price rates, please contact each individual tutor.

FREQUENTLY ASKED QUESTIONS

15. Can I take courses for my major at another school?

Yes. If you would like to complete some "Preparation for the Major" or "Major" courses during the summer at a community college, four-year university, or at another UC campus, you must verify course equivalencies with a undergraduate math advisor prior to completing the course. Also, please check with your college counselor regarding residency requirements and other regulations for taking courses at another school.

Upon completion of the course(s), send an official transcript to UCLA Undergraduate Admission, 1147 Murphy Hall, Box 951436, Los Angeles, CA 90095-1436. You must also fill out a Transfer Credit Evaluation Request form in order to have the course evaluated and credited to your record.

16. Will the grade for a course taken at another institution transfer to UCLA?

Only grades from other UC campuses (not a UC Extension program) and Education Abroad Programs (EAP) will be computed into your UCLA GPA. UCLA Extension courses with XLC (Concurrent Enrollment) count as UC courses and the grades do transfer.

17. If I want to study abroad, how can I find out if the math courses I plan on taking will count towards my major?

Students should consult with the undergraduate math advisor only after they have met with EAP and know which math courses they are considering. Bring program information, course descriptions and outlines when you meet with the undergraduate math advisor.

18. When and where may I petition to change or declare my major?

Students can apply for any of the pre-majors as long as they are in good academic standing and will not go over their unit max if they are accepted into the major.

Students can petition to be in any math major at MS 6356 as long as they meet the minimum requirements (http://www.registrar.ucla.edu/catalog/) to enter the major and have not exceeded 160.0 units (minus AP): complete the mathematics sequenced courses with "C's" or better, have a GPA of 2.5 or higher, and have no more than two repeats. (Additional economics preparation courses are required for the Mathematics/Economics and the Financial Actuarial Mathematics major where students can only have one repeat). Please refer to the department's website for further information on requirements at: http://www.math.ucla.edu/ugrad/majors.

- Effective Fall 2016, the Mathematics/Economics major requires a GPA of 2.7 or higher.

19. Can I double major?

The university requires students who want to double major to complete all the preparation for the major in both majors and two upper division courses in each major before applying. Please start by meeting with the undergraduate math advisor in MS 6356. If you are looking to switch to a different major outside of the Mathematics Department, please consult with the advisor for that specific department.

20. Can I declare more than one type of math major?

No. Additionally, students declare a math major and minor or Mathematics/Economics and any economics major.

21. How do I add the Specialization in Computing?

If you are in any math major (except Mathematics of Computation), you can submit a petition to MS 6356 upon completion of PIC 10B with a grade of "C-" or better. If at any time you wish to drop the specialization, you must submit a petition requesting that it be removed.

FREQUENTLY ASKED QUESTIONS

22. What other major or minor options are available if I decide to not be a math major?

There are two interdepartmental programs with the Mathematics Department that are run by other departments:

Mathematics/Atmospheric and Oceanic Sciences in the Department of Atmospheric and Oceanic Sciences Department
(http://www.atmos.ucla.edu/students/undergraduate/math-aos-joint-program)

Computational and Systems Biology in the Department of Cybernetics
(http://www.cs.ucla.edu/C&SB/)

There are two minors in the Mathematics Department:

Mathematics minor

Teaching Secondary Mathematics minor

23. What is the difference between a Mathematics/Economics and an Economics or Business Economics major?

Mathematics/Economics students receive a Bachelors of Science degree and are under the Mathematics Department major requirements. Half of the major requirements for the Mathematics/Economics degree are mathematics and the other half are economics courses. The program is designed to give students a solid foundation in both math and econ, stressing those areas of mathematics and statistics that are most relevant to economics and the parts of economics that emphasize the use of math and stats. It is ideal for students who may wish to complete a higher degree in economics.

CREDIT LIMITATIONS

Credit is given for only one course in each of the following groups:

- Mathematics 3A, 31A
- Mathematics 3B, 31B
- Mathematics #, #H
- Mathematics 110A, 117
- Mathematics 174A, 174E

You may not take a mathematics course for credit if you have credit for a more advanced course that has the first course as a prerequisite. This applies in particular to the repetition of courses. For example, if you wish to repeat 31B, you must do so before completing Math 32B. However, you are allowed to repeat 31B after completing 32A, since 31B is not a prerequisite for 32A.

You may not receive credit for both a course and for the honors version of the course (e.g., you may not receive credit for both Math 131A and Math 131AH). Math 110A, Math 110B and Math 110AH, Math 110BH (Honors) are a special case. Please see an undergraduate advisor in the Mathematics Department if you find that you have stopped in the middle of one of the algebra sequences and want to finish with the other the following year.

You may not receive credit for:	If you have already taken:
Mathematics 2	ANY Mathematics #106-199
Mathematics 132	Physics 132
Mathematics 151A	Electrical Engineering 133A
Mathematics 167	Economics 106G
Mathematics 170A	Statistics 100A or Electrical Engineering 131A
Mathematics 174A or Math 174E	Economics 141 (formerly Economics 141A) or Statistics C183/283
Mathematics 182	Computer Science 180

MAJORS IN UCLA MATHEMATICS

Mathematics (Pure Math)	This theoretical major is a good choice for students who are interested in pursuing graduate level mathematics. These students are interested in working as professors or researchers at the university level.
Applied Mathematics	Many different companies are interested in hiring applied mathematics graduates, including aerospace, financial companies, computer companies, and other technology-based industries. Students majoring in applied mathematics may also pursue graduate studies.
Financial Actuarial Mathematics	There are very few actuarial programs on the west coast; UCLA's major is one of the more well-known ones taught by current and retired actuaries. The major provides students with a foundation in mathematics, economics, and finance to prepare for the actuarial field. Students graduate with this degree will have a solid, quantitatively oriented background for employment as actuaries or in fields such as economics, finance, applied mathematics and statistics.
Mathematics of Computation	Students following this major take computer related mathematics courses and three upper division Computer Science courses, which are generally reserved for CS majors only. They are often hired into positions for CS engineers, but have the flexibility to pursue other computer-related fields. Mathematics of Computation majors have also succeeded in pursuing graduate degrees in Computer Science and Applied Mathematics.
Mathematics/Applied Science (Three plans available)	a) **Individual**—Allows students to combine upper division math with upper division course from other science areas (i.e., statistics, physics, chemistry, physiology, etc.).* b) **History of Science**—For students intending to go to professional school, law or business, while pursuing their interest in mathematics. c) **Medical and Life Sciences**—Prepares students for a career in the medical field while pursuing their interest in mathematics. Several courses overlap with the pre-med requirements.
Mathematics for Teaching	Mathematics for Teaching is a major geared toward individuals interested in teaching mathematics at the high school or middle school level. The program aligns with the guidelines established by the state to produce more qualified teachers.
Mathematics/ Economics	This interdepartmental major is great preparation for graduate level Economics and MBA programs. In addition, many business and finance companies find these students very desirable prospective employees.

*Note—This major requires departmental approval and is rarely granted because the Department already offers a wide range of majors.

MATHEMATICS

Pre-major (10 courses): can declare at any time when student is in good academic standing

	Quarter	Grade
Math 31A*		
Math 31B*		
Math 32A*		
Math 32B*		
Math 33A*		
Math 33B*		
PIC 10A		
Physics 1A		

Two courses from the following:

	Quarter	Grade
Econ 11		
Chem 20A		
Chem 20B		
LifeSci 1		
Physics 1B **or** 6B		
Physics 1C **or** 6C		
Philos 31		
Philos 132 (Logic, Second Course)		

The Major (12 courses): must be declared before 160.0 units (minus AP)

Math 115A+		
Math 131A+		
Math 110A		
Math 110B		
Math 120A		
Math 131B		
Math 132		

Five upper division mathematics courses chosen from: Math 106 - 199, Stats 100A - 102C

1.			
2.			
3.			
4.			
5.			

*The mathematics sequenced courses are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2014 and forward (http://catalog.registrar.ucla.edu/). 06/2016

APPLIED MATHEMATICS

Pre-major (10 courses): can declare at any time when student is in good academic standing

	Quarter	Grade		Quarter	Grade
Math 31A*	_____	_____	Physics 1A	_____	_____
Math 31B*	_____	_____	Physics 1B	_____	_____
Math 32A*	_____	_____			
Math 32B*	_____	_____	**One** course from the following:		
Math 33A*	_____	_____	Chem 20A	_____	_____
Math 33B*	_____	_____	Chem 20B	_____	_____
PIC 10A	_____	_____	Physics 1C	_____	_____

The Major (12 courses): must be declared before 160.0 units (minus AP)

Math 115A+	_____	_____
Math 131A+	_____	_____
Math 131B **or** 132	_____	_____
Math 142	_____	_____

Two 2-quarter sequences chosen from three different categories:

C. Differential Equations:

Math 134	_____	_____
Math 135	_____	_____

A. Applied Numerical Methods:

Math 151A	_____	_____
Math 151B	_____	_____

B. Probability and Statistics:

Math 170A **and** Math 170B	**or**	Stats 100A **and** Stats 100B	_____	_____
			_____	_____

Four upper division mathematics courses chosen from: Math 106 - 199, Stats 100A - 102C

1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

*The mathematics sequenced courses are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2012 and forward ((http://catalog.registrar.ucla.edu/). 06/2016

FINANCIAL ACTUARIAL MATHEMATICS

Pre-major (12 courses): can declare at any time when student is in good academic standing

	Quarter	Grade		Quarter	Grade
Math 31A*	_____	_____	Math 32B*	_____	_____
Math 31B*	_____	_____	Math 33A*	_____	_____
Math 32A*	_____	_____	Math 33B*	_____	_____
PIC 10A*	_____	_____			
Econ 1**	_____	_____	Mgmt 1A**	_____	_____
Econ 2**	_____	_____	Mgmt 1B**	_____	_____
Econ 11**	_____	_____			

The Major (11 courses): must be declared before 160.0 units (minus AP)

Math 115A+	_____	_____
Math 131A+	_____	_____
Math 170A	_____	_____
Math 170B	_____	_____
Math 175	_____	_____
Math 174A (**or** Math 174E **or** Econ 141 **or** Stats C183/283)	_____	_____

One two-quarter actuarial sequence chosen from two different categories:

A.) Life Contingency Actuarial Models:

Math 172B	_____	_____
Math 172C	_____	_____

B.) Casualty Loss Models:

Math 173A	_____	_____
Math 173B	_____	_____

Three upper division **Actuarial, Economics or Statistics** courses: Math 172B – Math 173B (whichever was not taken for the two-term sequence), Econ 101 – 199B, Stats 100C

1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

*(Mathematics sequenced courses), ** (Economics preparation courses): Each are calculated separately and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major. Repetition of more than one economics preparation course or of any economics preparation course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2016 and forward (http://catalog.registrar.ucla.edu/). 06/2016

MATHEMATICS OF COMPUTATION

Pre-major (13 courses): can declare at any time when student is in good academic standing

	Quarter	Grade		Quarter	Grade
Math 31A*			PIC 10A		
Math 31B*			PIC 10B		
Math 32A*			PIC 10C		
Math 32B*					
Math 33A*					
Math 33B*			**One** course from the following:		
Math 61			Chem 20A		
Physics 1A			Chem 20B		
Physics 1B			Physics 1C		

The Major (14 courses): must be declared before 160.0 units (minus AP)

Math 115A+		
Math 131A+		
Math 131B **or** 132		
Math 151A		
Math 151B		

Six upper division mathematics courses chosen from: Math 106 - 199, Stats 100A - 101C

1.			
2.			
3.			
4.			
5.			
6.			

Three upper division **Computer Science** courses:

1.			
2.			
3.			

*The mathematics sequenced courses are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

CS courses at UCLA are acceptable substitutions for PIC: CS 31 = PIC 10A, CS 32= PIC 10B, (CS 33 AND CS 35L) = PIC 10C. For help with enrollment in or information of CS courses, contact HSSEAS since all CS courses are restricted to HSSEAS students.

Note: This plan is for students starting in Fall 2016 and forward (http://catalog.registrar.ucla.edu/). 06/2016

INDIVIDUAL PLAN

Under the Mathematics/Applied Science major

Pre-major (7 courses): can declare at any time when student is in good academic standing

	Quarter	Grade		Quarter	Grade
Math 31A*	_____	_____	Math 33A*	_____	_____
Math 31B*	_____	_____	Math 33B*	_____	_____
Math 32A*	_____	_____	PIC 10A*	_____	_____
Math 32B*	_____	_____			

The Major (14 courses): must be declared before 160.0 units (minus AP)

Seven upper division mathematics courses chosen from: Math 106 – 199:

1.	Math 115A+		_____	_____
2.	Math 131A+		_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

One 2-quarter mathematics sequence:

6.	_____	_____	_____	_____
7.	_____	_____	_____	_____

Seven upper division courses chosen from 1 - 2 related fields:

I understand that if I wish to make ANY CHANGES to my Individual Plan, I must FIRST obtain written approval from the Student Services Office in MS, 6356.

Department: _____

	Course	Title	Quarter	Grade
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____

Department: _____

	Course	Title	Quarter	Grade
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____

Student's Signature _____ Date _____

Undergraduate Vice-Chair's Signature _____ Date _____

*The mathematics sequenced courses are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2012 and forward (http://catalog.registrar.ucla.edu/). 06/2016

HISTORY OF SCIENCE PLAN

Under the Mathematics/Applied Science major

Pre-major (10 courses): can declare at any time when student is in good academic standing

	Quarter	Grade
Math 31A*		
Math 31B*		
Math 32A*		
Math 32B*		
Math 33A*		
Math 33B*		
PIC 10A		

Three courses from the following:

	Quarter	Grade
Hist 2B		
Hist 2D		
Hist 3A		
Hist 3B		
Hist 3C		
Hist 3D		

The Major (14 courses): must be declared before 160.0 units (minus AP)

Math 115A+			Math 106		
Math 131A+			Math 134		
			Math 170A		

Three upper division mathematics courses chosen from: Math 110A - 199

1. _____ _____ _____ _____
2. _____ _____ _____ _____
3. _____ _____ _____ _____

Six upper division **History, Philosophy or Physical Science** courses:

Five upper division courses from the following:

Hist 179A	History of Medicine: Historic roots of Healing Arts		
Hist 179B	History of Medicine: Foundations of Modern Medicine		
Hist 180A	Topics in History of Science		
Hist M180B	Historical Perspectives on Gender and Science		
Hist 180C	Science and Technology in the 20th Century		
Philos 124	Philosophy of Science: Historical		
Phy Sci/Neurbio M168	Ideas and Experiments in History of Physiology		

One Honors Collegium course with "history of science or medicine" content:

1. _____ _____ _____ _____

*The mathematics sequenced courses are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2012 and forward (http://catalog.registrar.ucla.edu/). 06/2016

MEDICAL AND LIFE SCIENCES PLAN

Under the Mathematics/Applied Science major

Pre-major (19 courses): can declare at any time when student is in good academic standing

	Quarter	Grade		Quarter	Grade
Math 31A*	_____	_____	Chem 20A	_____	_____
Math 31B*	_____	_____	Chem 20B	_____	_____
Math 32A*	_____	_____	Chem 20L	_____	_____
Math 32B*	_____	_____	Chem 30A	_____	_____
Math 33A*	_____	_____	Chem 30AL	_____	_____
Math 33B*	_____	_____	LifeSci 1	_____	_____
PIC 10A	_____	_____	LifeSci 2	_____	_____
Physics 1A	_____	_____	LifeSci 3	_____	_____
Physics 1B	_____	_____	LifeSci 23L	_____	_____
			LifeSci 4	_____	_____

The Major (13 courses): must be declared before 160.0 units (minus AP)

Math 115A+	_____	_____	Math 151A	_____	_____
Math 131A+	_____	_____	Math 170A	_____	_____
Math 134	_____	_____	Math 170B	_____	_____

One upper division mathematics course chosen from: Math 110A - 199, Stats 100B - 101C

1. _____ _____ _____ _____

Six upper division outside science courses:

Phy Sci M180A	Cellular and Systems Neuroscience	_____	_____
Phy Sci M180B	Molecular and Developmental Neuroscience	_____	_____
Phy Sci M180C	Behavioral and Cognitive Neuroscience	_____	_____

(Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Neuroscience M101A-M101B-M101C, and Psychology M117A-M117B-M117C)

Three upper division courses from the following:

Biomath 110	_____	_____	EEB C119A	_____	_____
Biomath 160	_____	_____	EEB 133	_____	_____
Biostat 100A	_____	_____	EEB 135	_____	_____
Chem CM160A	_____	_____	Phy Sci 100	_____	_____
ComSci CM186	_____	_____	Phy Sci C135	_____	_____

*The mathematics sequenced courses are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2014 and forward (http://catalog.registrar.ucla.edu/). 06/2016

MATHEMATICS FOR TEACHING

Pre-major (11 courses): can declare at any time when student is in good academic standing

	Quarter	Grade		Quarter	Grade
Math 31A*	_____	_____	Physics 1A **or** 6A	_____	_____
Math 31B*	_____	_____	**Two** courses from the following:		
Math 32A*	_____	_____	Chem 20A	_____	_____
Math 32B*	_____	_____	Chem 20B	_____	_____
Math 33A*	_____	_____	Physic 1B **or** 6B	_____	_____
Math 33B*	_____	_____	Physic 1C **or** 6C	_____	_____
Math 61	_____	_____	PIC 10BC - 97:		
PIC 10A	_____	_____	_____	_____	_____

The Major (13 courses): must be declared before 160.0 units (minus AP)

Math 115A+	_____	_____
Math 131A+	_____	_____
Math 105A	_____	_____
Math 105B	_____	_____
Math 105C	_____	_____
Math 106	_____	_____
Math 117 **or** 110A	_____	_____
Math 123 **or** 120A	_____	_____
Math 170A **or** Stats 100A	_____	_____
Stats 100B	_____	_____

One course chosen from Math 131B - 136: Mathematics Analysis

1. _____ _____ _____ _____

One course chosen from Math 142 - 167: Applied Mathematics

1. _____ _____ _____ _____

One course chosen from Math 110B – 191H **or** Stats100C: Upper Division Mathematics

1. _____ _____ _____ _____

Disclaimer: In order to receive a 100% CSET waiver from UCLA, students must have "C-" or better in the following courses and an upper division GPA of 2.0 or higher: Mathematics 117 or Mathematics 110A, Mathematics 123 or Mathematics 120A, Mathematics 131A, Mathematics 105A, Mathematics 105B, and Mathematics 105C (http://curtiscenter.math.ucla.edu/undergraduates).

*The mathematics sequenced courses are calculated separately from the other preparation for the major courses and must be completed with a minimum overall 2.5 grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2012 and forward (http://catalog.registrar.ucla.edu/). 06/2016

MATHEMATICS/ECONOMICS

Pre-major (11 courses): can declare at any time when student is in good academic standing

	Quarter	Grade		Quarter	Grade
Math 31A*	_____	_____	Math 33A*	_____	_____
Math 31B*	_____	_____	Math 33B*	_____	_____
Math 32A*	_____	_____	Math 61*	_____	_____
Math 32B*	_____	_____	PIC 10A*	_____	_____
Econ 1**	_____	_____	Econ 11**	_____	_____
Econ 2**	_____	_____			

The Major (14 courses): must be declared before 160.0 units (minus AP)

Math 115A+	_____	_____
Math 131A+	_____	_____
Math 131B	_____	_____
Math 164	_____	_____
Math 170A	_____	_____
Math 170B	_____	_____
Math 174E (or Math 174A or Econ 141 or Stats C183/C283)	_____	_____

One upper division mathematics courses chosen from: Math 135, Math 136, Math 171

1. _____ _____ _____ _____

Six upper division **Economics** courses:

Econ 101+	Microeconomic Theory	_____	_____
Econ 102+	Macroeconomic Theory	_____	_____
Econ 103	Introduction to Econometrics	_____	_____
Econ 103L	Econometrics Laboratory	_____	_____

Two additional upper division economics courses chosen from: Econ 106 - 199

1. _____ _____ _____ _____
2. _____ _____ _____ _____

*(Mathematics sequenced courses), ** (Economics preparation courses): Each are calculated separately and must be completed with a minimum overall **2.7** grade-point average and a grade of "C" or better in each course. Repetition of more than two mathematics sequenced courses or of any mathematics sequenced course more than once results in automatic dismissal from the major. Repetition of more than one economics preparation course or of any economics preparation course more than once results in automatic dismissal from the major.

+ "C–"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This plan is for students starting in Fall 2016 and forward (http://catalog.registrar.ucla.edu/)

06/2016

SPECIALIZATION IN COMPUTING

The Specialization in Computing is not a major, but a supplement to the Mathematics, Applied Mathematics, Financial Actuarial Mathematics, Mathematics/Applied Science, Mathematics for Teaching and Mathematics/Economics majors. It provides an extensive education in elementary computer science and an introduction to its applications in mathematics. Students who complete the specialization will receive a notation on their diploma. Mathematics/Economics majors interested in a Specialization in Computing must follow the Specialization offered through the Mathematics Department.

- Each PIC course, Math 61 or 180, and at least two courses from Math 149-159 must be passed with a minimum grade of "C-" and an overall combined GPA of 2.0.
- Students planning to complete the Specialization in Computing must petition to add this program to their major after completing PIC 10B. Petitions should be filed in the Student Services Office, MS 6356.
- Students who have added the Specialization in Computing to their major and choose to graduate before completing the specialization must officially drop the program by filing a petition in MS 6356.
- Courses 180 and 182 may only be applied once to the Specialization in Computing.

Required for the specialization (7 courses):

	Quarter	Grade
PIC 10A	_____	_____
PIC 10B	_____	_____

Two PIC courses from the following:

PIC 10C	_____	_____
PIC 15	_____	_____
PIC 16 (Python)	_____	_____
PIC 20A	_____	_____
PIC 20B	_____	_____
PIC 30	_____	_____
PIC 40A	_____	_____
PIC 60	_____	_____

One mathematics course from the following:

Math 61 **or** Math 180 **or** Math 182 **or** Math 184	_____	_____

Two upper division mathematics courses chosen from: Math 149 - 159, 180, 182

1. _____	_____	_____	_____
2. _____	_____	_____	_____

MINOR IN MATHEMATICS

The minor in mathematics is designed to provide students who are non-math major the opportunity to widen their background and general comprehension of the role of mathematics in various disciplines.

Though certain lower division, math courses are not required for the minor (Math 31A, Math 31B, Math 32B), please be aware of any upper division mathematics courses for which those prerequisites are enforced/required.

Students planning to complete the minor in mathematics must petition to add this minor to their major after completing 12.0 units of mathematics towards the minor, where one is an upper division course, at UCLA. Students who have added the minor and choose to graduate before completing the minor must officially drop the minor by filing a petition. Petitions should be filed in the Student Services Office, MS 6356.

Students must complete all lower division courses with grades of "C" or better. Upper division courses must have an overall grade-point average of 2.0 or better that is calculated separately from the lower division courses.

Required for the minor (8 courses):

	Quarter	Grade
Math 32A	_____	_____
Math 33A	_____	_____
Math 33B	_____	_____

Five upper division mathematics courses chosen from: Math 106 – 199

1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

Note: This minor is not open to any math major.

06/2014

Minor in Teaching Secondary Mathematics

The Teaching Secondary Mathematics minor is designed for students majoring in fields other than mathematics who plan to teach secondary mathematics after graduation. For non-majors joining the Mathematics Department and School of Education's Joint Mathematics Education Program (JMEP), the minor provides recognition for completion of prerequisite coursework for the program. The minor provides additional upper division course work in mathematics relevant to the secondary school curriculum: algebra, geometry, and analysis. This coursework also prepares students for content on the California Subject Examination for Teachers (http://www.ctcexams.nesinc.com/PDF/CSET_Prep/CS_111teststructure.pdf), which is required to prove competence in the subject matter. In addition, the minor provides the coursework on secondary mathematics from an advanced standpoint which is recommended by the Conference Board of Mathematical Sciences.

Though lower division courses (Math 31A, Math 31B, Math 32A, Math 32B, Math 33A, and Math 33B) are not required for the minor, please be aware of any upper division mathematics courses for which those prerequisites are enforced/required.

To enter the minor, students must have completed Mathematics 115A with a grade of "C" or better. If Mathematics 115A was not completed at UCLA, students must show proof that they completed an equivalent course with a grade of "C" or better. Students who have added the minor and choose to graduate before completing the minor must officially drop the minor by filing a petition. Petitions should be filed in the Student Services Office, MS 6356.

Required for the minor (7 courses):

	Quarter	Grade
Math 115A+	_____	_____
Upper division mathematics courses with "C-'s" or higher and a minimum 2.0 upper division GPA		
Math 117 / Math 110A	_____	_____
Math 123 / Math 120A	_____	_____
Math 131A	_____	_____
Math 105A	_____	_____
Math 105B	_____	_____
Math 105C	_____	_____

+ "C"or better. It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A.

Note: This minor is not open to any math major.

06/2016

DEPARTMENTAL HONORS & SCHOLAR

The Mathematics Departmental Honors and Scholar Programs are two of the most rigorous programs that are designed to further prepare students for graduate study. While the Departmental Honors Program grants eligible students the opportunity to work closer with faculty and apply their learning to an original project, the Departmental Scholar Program allows students with exceptional academic records to simultaneously pursue a Bachelors and Masters degree.

If you are interested in applying or have any questions about either of these programs, please consult with the undergraduate math advisor.

Admission to the Honors Program:

To be considered for admission to the **Departmental Honors Program** for any math major, a student must:

- be officially enrolled in his/her respective math major;
- have completed at least four courses at UCLA in the Mathematics Department from those required in the "Preparation for the Major" or "Major"; and
- have at least a 3.6 GPA in such mathematics courses taken at UCLA.

To be considered for admission to the **Honors Program in Mathematics/Economics**, a student must:

- be officially enrolled in the Mathematics/Economics major;
- have completed all of the "Preparation for the Major" courses; and
- have at least a 3.5 GPA in the "Preparation for the Major".

* In addition to the requirements listed above, students must complete specific courses within the department. Please refer to our website at http://www.math.ucla.edu/ugrad/honor-programs for more detailed information and consult with the undergraduate math advisor.

Eligibility & Timeline for the Scholar Program:

- Completion of at least 96 units;
- Completion of all Preparation for the Major courses;
- Completion of the entire Math 30-series courses (31AB, 32AB, 33AB); and
- Completion of Math 115AH, 115B, 131AH and 131BH.

First year at UCLA: Complete or have credit from another institution/standardized test (AP or IB Exams) all lower-division Calculus-based courses (Math 31A, 31B, 32A, 32B, 33A, 33B). If possible take 115AH in spring.

Second year at UCLA: Complete Math 115AH (Honors Linear Algebra), Math 115B (Linear Algebra), Math 131AH (Honors Analysis) and 131BH (Honors Analysis). Completion of these courses will provide a strong foundation for the Basic Qualifying Exam, which is a crucial component of completing the Scholar program. Students are encouraged to apply to the Departmental Scholar program upon completion of 115B and 131BH.

Third Year at UCLA: Pass the Basic Qualifying Exam. Complete other major courses, these particular courses will depend on whether the student is pure or applied. Students can also begin their graduate courses as well.

Fourth year at UCLA: Complete the remaining graduate level courses for the Masters Degree.

** In addition to the requirements listed above, final approval is required from College Honors and the Graduate Division. Please refer to our website at http://www.math.ucla.edu/ugrad/scholar for more detailed information and consult with the undergraduate math advisor.

GRADUATE SCHOOL OPPORTUNITIES

Successful graduate work in mathematics requires skills in formal reasoning and in constructing rigorous mathematical proofs. These skills are more essential for success at the graduate level than is the knowledge of any particular topic. The honors sequences will provide training in these skills to a far greater degree than the regular sequences. In fact, our graduate admissions committee looks more favorably upon an "A-" earned in an honors sequence than an "A" in the regular sequence. It is likely that other graduate programs follow similar policies.

Most applications for graduate programs in mathematics must be submitted between December and February, so it is best to contact colleges during the summer or access their websites for online applications and additional information.

Recommended courses to prepare for graduate school:

For Pure Mathematics:

- Math 115AH + 115B
- Math 131AB (Honors) + 131C
- Math 110AB (Honors) + 110C
- Math 132H
- Math 120A, 121
- Math 134, 135 and 136

For Applied Mathematics:

- Math 115AH
- Math 131AB (Honors)
- Math 110AB (Honors) + 110C
- Math 134, 135 and 136
- Math 151AB, 155
- Math 132H

Most universities will require the following materials with their applications:

1.) Three letters of recommendation

2.) GRE general and mathematics subject exams

3.) Personal statement

Please research on the graduate or professional schools you are interested in before meeting with the undergraduate math advisor for information on applying to graduate school and timelines.

For information about applying to medical school or other professional schools you may also visit the UCLA Career Center online at:
http://www.career.ucla.edu/

RESEARCH OPPORTUNITIES

UCLA Research Opportunities

IPAM Research in Industrial Projects for Students ("RIPS")

https://www.ipam.ucla.edu/programs/student-research-programs/

Research in Industrial Projects for Students (RIPS) is based on the successful Math Clinic concept that originated at Harvey Mudd College in 1973 as well as the Research Experience for Undergraduates (REU) program sponsored by the National Science Foundation. In the RIPS program, teams of students, directed by faculty advisors, work to solve industry-related problems. RIPS brings together highly qualified undergraduates in mathematics or related majors with sponsoring industry, government, and nonprofit organizations to collaborate on projects. Each team of three to four advanced students spends two summer months working on a problem posed by the sponsoring organization under the leadership of a faculty advisor. Projects focus on problems of serious interest to the sponsor and stimulating challenges to the students. Participation in RIPS provides valuable real-world technical and managerial experience for students and valuable R&D for the sponsor.

UCLA NSF REU Program

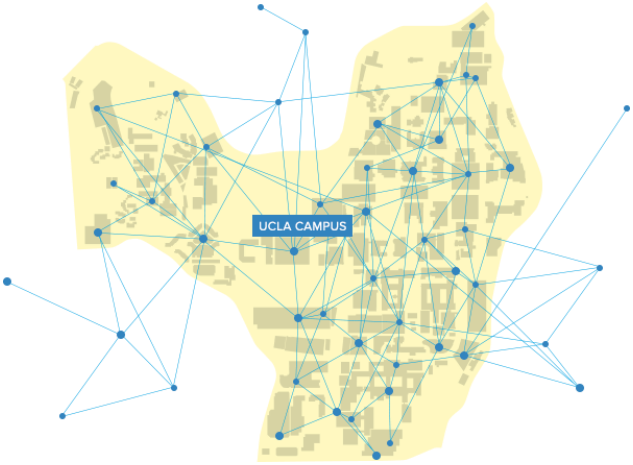
https://www.mathprograms.org/db/programs/346

The REU program includes both individual research and group activities. Each student is assisted by a faculty advisor and some also by a graduate-student advisor. Group activities include seminars and other social and professional events. Students are encouraged to continue their research during the following academic year, under the direction of their summer mentor or another faculty member. Eligible students will receive a stipend and on-campus housing (possibly) for their work. Visit the website above for important details.

Undergraduate Research Center (2121 Life Science Building)

http://www.ugresearchsci.ucla.edu/

The Undergraduate Research Center - Sciences serves students and faculty in all areas of life and physical sciences, engineering and mathematics. The primary mission is to promote, develop and celebrate undergraduate student research with the overall goal of enhancing undergraduate education and preparing students, including those from disadvantaged backgrounds, for academic and research careers. Research takes different forms in different disciplines. However, in all disciplines, research involves creative activities and meaningful research produces results that are worthy of communication to others. Undergraduate research involves the close collaboration between a student and a faculty mentor as well as other members of their research group.



Some of the programs that the URC runs through the school year and summer include (but are not limited to):

- Student Research Program (SRP) 99 Courses
- Amgen Scholars, Beckman Scholars
- Bridges to UCLA for Community College Students
- CARE Fellows & Scholars
- CARE Science, Engineering, and Math (STEM) Summer Research Program
- SMC/UCLA Science Research Initiative
- UC Leadership Excellence through Advanced Degrees Program (UC LEADS)
- Undergraduate Research Fellows & Scholars

RESEARCH OPPORTUNITIES

Outside of UCLA

While UCLA has many opportunities for undergraduate research, we also highly encourage students to take advantage of research opportunities from other institutions. Below are some (but not all) examples of research opportunities outside of UCLA.

National Science Foundation REU Programs

http://www.nsf.gov/crssprgm/reu/list_result.cfm?unitid=5044

The National Science Foundation funds research and education in most fields of science and engineering. It does this through grants, and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the United States. The Foundation accounts for about one-fourth of federal support to academic institutions for basic research. The agency operates no laboratories itself but does support National Research Centers. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Science Undergraduate Laboratory Internships (SULI)

http://science.energy.gov/wdts/suli

The Science Undergraduate Laboratory Internship (SULI) program encourages undergraduate students to pursue science, technology, engineering, and mathematics (STEM) careers by providing research experiences at the Department of Energy (DOE) laboratories. Selected students participate as interns appointed at one of 17 participating DOE laboratories/facilities. They perform research, under the guidance of laboratory staff scientists or engineers, on projects supporting the DOE mission. The SULI program is sponsored and managed by the DOE Office of Science's, Office of Workforce Development for Teachers and Scientists (WDTS) in collaboration with the DOE laboratories/facilities.

DIMACS REU: Research Experience for Undergrads at Rutgers University

http://reu.dimacs.rutgers.edu/

DIMACS was founded as one of 24 Science and Technology Centers funded by the NSF. It is located at Rutgers University, and is a joint project of Rutgers, Princeton, AT&T Laboratories, Bell Laboratories, Telcordia Technologies, the Cancer Institute of New Jersey, and the NEC Research Institute. Applicants should be undergraduates with a major in Computer Science, Mathematics, or a closely related STEM field. They should be current juniors (graduating in in the Fall or Spring immediately following the program), although sophomores with exceptionally strong backgrounds will be considered.

NASA Undergraduate Student Research Program

http://usrp.usra.edu/

The NASA USRP offers undergraduates across the United States mentored research experiences at the NASA centers. Two sessions are typically offered. They consist of a 10-week session in the summer and a 15-week session in the fall. The project seeks applications from undergraduates who are U.S. citizens enrolled full-time in accredited U.S. colleges or universities. Applicants must be rising juniors or seniors at the completion of the current year's spring semester or quarter. Eligible applicants must have academic majors or course concentration in engineering, mathematics, computer science, or physical and life sciences.

CAREER OPPORTUNITIES

Graduating with a major in Mathematics from UCLA will give you the critical thinking skills that employers are seeking. Mathematics opens the door to unlimited opportunities, if you are willing to invest the time necessary to perform well. Our students have been employed by a diverse selection of companies in varying capacities.

In today's competitive world, a good education is essential. With a strong background in mathematics and logic, you give yourself the best advantage for **ANY** career you choose.

Some of the careers our students have enjoyed:

- Computer Programmer
- Financial Analyst
- Actuary
- Buyer
- Programmer Analyst
- High School Teacher
- Navy Pilot
- Management Consultant
- Cost Analyst
- Financial Planner
- Auditor
- Technical Advisor
- Accountant
- And many, many more

For more information about career opportunities please visit the Career Center online at:

http://career.ucla.edu/

STUDENT ORGANIZATIONS

UCLA BRUIN ACTUARIAL SOCIETY

The UCLA Bruin Actuarial Society is designed for those students interested in the actuarial profession. They serve as a support group for motivated students who plan on taking Actuarial exams and want to find internships/jobs in the field. Find out why actuaries are consistently considered one of the best jobs in the U.S. according to the Job Rated Almanac. They are also dedicated to informing fellow Bruins who are interested in the actuarial field. During the last year, weekly e-mails were sent out to club members regarding company information sessions, internships, jobs, and scholarships.

To join please email the Bruin Actuarial Society at: bruinactuaries@gmail.com or check out the website at www.math.ucla.edu/~actuary/.

UCLA PI MU EPSILON

Pi Mu Epsilon, Inc. (PME), is the Honorary National Mathematics Society. Their purpose is "to promote scholarly activities in the mathematics among students, awareness of higher educational programs and career opportunities in mathematics, as well as social activities among its members." Our current and future chapter projects include arranging popular talks on mathematical topics, a weekly problem-solving group, on-campus and off-campus community involvement (i.e., setting up high school competitions), and social activities.

For information please email PMEinLA@gmail.com

UNDERGRADUATE MATHEMATICS STUDENT'S ASSOCIATION

The UCLA Undergraduate Mathematics Students' Association (UMSA) is an officially recognized university club for mathematics majors and students of the other majors who are interested in mathematics. UMSA was established in response to students' desire to have a "connection" to the Mathematics Department. The purpose of UMSA is to:

- Promote the academic awareness of the mathematics major.
- Promotes better student-faculty relations.
- Provide information on career opportunities in mathematics.
- Provide a peer network in which students can discuss and further develop ideas and concepts that are presented in mathematics courses.

http://www.math.ucla.edu/~umsa/ email: umsa@math.ucla.edu

Teaching Preparation Programs

Do you love mathematics? Do you like to explain mathematics concepts to others?

Imagine getting to develop a deep understanding of the mathematics you've learned and help young students every day of the work week! Teaching is a fun, creative, rewarding and challenging career. It is well paid with salaries starting at ~$45K and peaking at ~$94K for ten months work. Further, because a significant portion of secondary mathematics teachers do not have strong mathematics backgrounds, mathematics majors who want to teach mathematics are in high demand. Recent data shows that even if every CA mathematics major graduating next June chose to teach, more than half the state's open secondary mathematics teaching positions would not be filled.

UCLA is one of the top three California universities in the number of graduates who go on to earn a CA mathematics teaching credential. Research shows that over 80% of UCLA mathematics graduates who go on to complete their teaching credential in the UCLA Teacher Education Program remain in teaching after 5 years. This is a stark contrast to the Los Angeles Unified School District average of 62%! In addition, evidence demonstrates that a significant fraction of UCLA Mathematics Department teacher preparation program graduates become mathematics teacher-leaders, increasing their impact on the mathematics education of local communities.

We encourage you to participate in our programs. We offer solid preparation for a career in teaching, a strong foundation for future leadership in the field, a cohort of colleagues to support you in the classroom, and dependent on funding, financial support toward your goals.

For general questions about UCLA Teaching Preparation Programs, please contact the undergraduate math advisor.

For additional questions or general inquiries about a career in teaching mathematics, please feel free to contact the Curtis Center Executive Director, Heather Dallas (dallas@math.ucla.edu).

TEACHING PREPARATION PROGRAMS

UCLA CalTeach - Math

UCLA California Teach - Math offers up to four years of courses, field experiences, credential preparation, and professional networking opportunities for undergraduates interested in teaching mathematics . In the program, mathematics professors, mathematics educators, and current mathematics teachers will work with you to provide you with the content and pedagogical content knowledge necessary to be a high quality mathematics teacher. Each year of the program includes mathematics courses, mathematics education courses, observation and participation in local schools, and credential preparation. Students may enroll in anywhere from one to all four years of the program, and those who complete all four years are thoroughly prepared for admission to a California (CA) credential program. For more information and to apply, go to the UCLA Curtis Center website at http://curtiscenter.math.ucla.edu/undergraduates.

The Joint Mathematics Education Program

The Joint Math/Ed Program (JMEP) is a collaborative effort of the UCLA Mathematics Department and the Graduate School of Education's Teacher Education Program. In this program, students begin work toward a California Preliminary Single Subject Teaching Credential in Mathematics and a Master of Education degree during their senior year, and complete this coursework by the end of the academic year immediately following completion of their bachelor's degree. The program enables students to earn a full time salary (about $40,000) while teaching full time in Los Angeles urban schools during the academic year immediately following their bachelor's degree. Students accepted to the Joint Mathematics Education Program are automatically enrolled in the CalTeach - Math Senior Year. For more information and to apply, see the UCLA Curtis Center website http://curtiscenter.math.ucla.edu/undergraduates/joint-math-education-program.

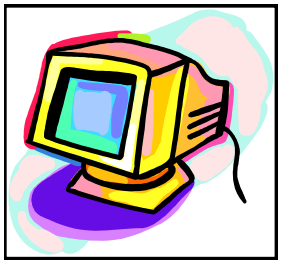
Subject Matter Preparation for the CA Teaching Credential

Applicants for a California Preliminary Single Subject Teaching Credential in Mathematics must verify their “subject matter competence” to teach mathematics in one of two ways: 1.) complete a CA-approved “subject matter program” and obtain verification of completion from the university with the approved program or 2.) achieve a passing score on the three part California Subject Matter Examination for Teachers (CSET).

The UCLA Mathematics Department is one of three UC campuses with a CA-approved “subject matter program” in mathematics. The program is comprised of mathematics courses, most of which are common to most mathematics majors, and the Math 105ABC sequence. Students who complete the department’s Mathematics for Teaching major will automatically complete the department’s CA-approved subject matter program. At the end of their senior year, students may request a letter from the Curtis Center Executive Director’s office verifying their completion of these course and thus their subject matter competence for the CA Single Subject Teaching Credential in Mathematics. For more information go to http://curtiscenter.math.ucla.edu/sites/default/files/15_16.Handbook_p10.pdf.

PROGRAM IN COMPUTING (PIC) LAB

The PIC Lab supports both PIC students learning programming and Math students who wish to use analytical software. The lab is reserved for PIC and Math students ONLY. Accounts should be automatically created for all eligible students each quarter or can be requested at the Student Services Office in MS 6356. Student accounts have 1 GB of disk space on the network drive and may print 200 pages per class per quarter at no charge (no additional printing is allowed).



LOCATION: Math Sciences 2000 (Main PIC Lab)

HOURS*:

Fall, Winter and Spring Quarters:

Mon & Wed	9 a.m. - 6 p.m.
Tue & Thu	9 a.m. - 9 p.m.
Fri	9 a.m. - 6 p.m.
Sun	1 p.m. - 5 p.m.

Summer Sessions:

Mon - Thurs	10 a.m. - 4 p.m.
Fri, Sat, Sun	Closed

***Hours may vary each quarter. See webpage for actual hours each quarter. Reduced hours during finals week.**

WEBSITE: http://www.pic.ucla.edu/piclab/
CONTACT: (310) 825 - 7267

SUGGESTED SCHEDULE

- **At a minimum, <u>all math majors must</u>:**

1) ***Pass the <u>calculus sequenced courses</u> (Math 31A, Math 31B, Math 32A, Math 32B, Math 33A and Math 33B) with a grade of <u>"C" or better in each course with a minimum overall 2.5 grade point average</u>. Please note the Mathematics/Economics major requires a minimum overall <u>2.7 grade point average</u>. Repetition of <u>more than two</u> mathematics sequenced courses or of any mathematics sequenced course more than once will result in an automatic dismissal from the major.**
2) **+Pass Math 115A and Math 131A with a grade of "C–" or better in each course.**

- **Students must also meet other specific pre-major requirements which will vary depending on the major.**
- **It is strongly recommended that students take Math 115A as one of their first upper division courses before Math 131A. For everything else, let your interests guide you. As long as you meet the prerequisites, you can take the course.**
- **Students can declare a pre-major at anytime as long as they do not exceed the unit maximum and are in good academic standing.**
- **Students must declare a math major before reaching 160.0 units (minus AP units awarded).**

Below is a *general recommended* schedule to give students an idea of how they are progressing. Schedules will vary depending on the major, given that some course offerings are limited and students start at different levels of mathematics. It is ultimately the student's responsibility to be flexible with their schedule and plan accordingly.

Year 1

First year of Calculus*

(Econ courses if Actuarial or Math/Econ major)

Year 2

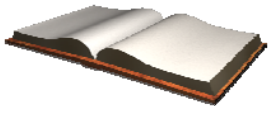
Second year of Calculus*

Year 3

Math 115A+

Math 131A+

(Math 175 if Actuarial major)



ACADEMIC PLANNER

Fall	Winter	Spring	Summer

Fall	Winter	Spring	Summer

Fall	Winter	Spring	Summer

Fall	Winter	Spring	Summer

QUARTER COURSE PLANNER

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00					
9:00					
10:00					
11:00					
12:00					
1:00					
2:00					
3:00					
4:00					
5:00					
6:00					


TIME FOR THE END OF SEMESTER SURVEY! HOW WOULD YOU RATE THIS SEMESTER'S MATH CLASS OUT OF TEN?
TWO
WHY?
BECAUSE I CAN'T COUNT ANY HIGHER
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