



UCSD MATHEMATICS
The Language of Science
www.math.ucsd.edu

Most of the fundamental ideas of science are essentially simple, and may, as a rule, be expressed in a language comprehensible to everyone. - Albert Einstein

Why Math? Why UCSD?

Mathematics provides powerful intellectual tools that have led to tremendous advances in modern science and technology.

The Department of Mathematics provides courses of study that introduce students to the fundamentals of mathematics and allow them to master the most important parts of the subject both pure and applied. Undergraduate students go on to careers as consultants, financial analysts, math and science teachers, researchers, securities brokers, web developers, earthquake consultants, actuaries, technical assistants, as well as graduate school. Graduates of our Ph.D. program go on to tenured positions in leading universities as well as key executive and technical roles in international business ventures.

Since its founding in 1960, UCSD has risen from an isolated ocean research institute to one of the premier universities in the nation. Located on 1,200 acres of coastal woodland just north of the city of San Diego, the campus boasts one of the best climates of any university in the world. The educational climate is equally ideal. UCSD is at the forefront of the 'new economy,' leading the nation in biotechnology and telecommunication research. With strong traditions of interdisciplinary scholarship and entrepreneurial innovation, the university looks to continue its growth in the new century.

The Mathematics Department on this campus was founded by Stefan Warschawski, who recruited the initial group of members in 1964. His philosophy was to organize a department that would have broad interests covering both Pure and Applied Mathematics and to recruit the best faculty available in every field. Continuing this philosophy, the department has grown through the years and has included three Fields Medalists, four members of the National Academy of Sciences, five members of the American Academy of Arts & Sciences, eleven Sloan Fellowship recipients, and fifteen recipients of various competitive fellowships and awards.

For the things of this world cannot be made known without a knowledge of mathematics. - Roger Bacon

Undergraduate Program

The department offers seven different undergraduate degree programs to accommodate various interests in mathematics, pure and applied. Our undergrads are accepted into top-rank graduate programs or enter the work-force in many high-level positions. We currently offer the following degrees:

B.A. in Mathematics
Designed for those interested in mathematical theory. For students who wish to gain a graduate degree in Math.

B.A. in Applied Mathematics
For those interested in the classical relationships between mathematics, the physical sciences, and engineering.

B.S. in Mathematics-Scientific Computation
Well suited for those interested in mathematical theory and its applications in computing.

B.A. in Mathematics-Applied Science
For those who have an interest in a specific scientific field as well as mathematics.

B.A. in Mathematics-Computer Science
Trains mathematically oriented computer scientists in the mathematical foundations of computer science.

B.A. in Mathematics-Secondary Education
Designed for those who have an interest in teaching mathematics at the K-12 level.

B.A. in Mathematics and Economics
A joint major giving an excellent training to those interested in graduate programs in economics and finance.

Math Advising Office
A departmental advisor is available to speak to current and potential mathematics majors regarding course selection and progress toward a degree. The advisor can also assist in career development through individual and group sessions.

For further information please visit the following website:
<http://www.math.ucsd.edu/undergraduate/>

Graduate Program

A flexible program combining coursework, three qualifying examinations, research, teaching experience and thesis research, encourages students to pursue their special interests while providing a broad, advanced education. Doctoral students are primarily supported by teaching assistantships.

We offer curricula leading to the:

- M.A. in Pure Mathematics
- M.A. in Applied Mathematics
- M.S. in Statistics
- Ph.D. in Mathematics

Information on applying for available outside fellowships can be found at: <http://ogsr.ucsd.edu/fellowships/>

Electronic or paper applications require a \$60.00 processing fee (<http://www-ogsr.ucsd.edu/prospective/>). Applications and supporting documents for the Ph.D. program are due by mid-January of each year for the Fall term only. The deadline for all Master degree programs is typically March 1st of each year.

For application and further information please visit:
<http://www.math.ucsd.edu/graduate/application/>

Mathematics is the queen of sciences She often condescends to render service to astronomy and other natural sciences, but in all relations she is entitled to the first rank. -Carl Friedrich Gauss



Student Opportunities

Honors Program
The department offers an honors program for those undergraduates who have demonstrated excellence in the majors. Successful completion of the honors program (a written thesis is required) entitles the student to graduate with departmental honors.

UCSD Math Club
Provides opportunities for students to find out about internships and career opportunities through social and professional networking events, community service projects, speakers and seminars.

Academic Employment
The department regularly employs graduate students as Teaching Assistants in its undergraduate courses; additionally, undergraduate students are employed as course graders, calculus lab tutors and, occasionally, lower division Teaching Assistants.

Undergraduate Student Seminars
Students have the opportunity to learn of a variety of topics, current research results, and career opportunities in mathematics. All designed for the undergraduate audience.

Mathematics Internships
An enrichment program which provides work experience with public/private sector employers under the supervision of a faculty member and site supervisor.

MathStorm
The Graduate Mathematics Consulting Group (GMCG) is a group of graduate students in the UCSD Department of Mathematics who volunteer their time to assist researchers with mathematical problems. The service is free to the UCSD research community.

The mathematical sciences particularly exhibit order, symmetry, and limitation; and these are the greatest forms of the beautiful. -Aristotle

By the Numbers...

Department of Mathematics		
Total undergraduate majors:		470
Ratio of Male to Female:		61:39
2001-02 graduating majors:		92
Median Math B.A. Income:		\$51,584 ¹
Graduate Students:		95
Ph.D.s Granted 2001-02		9
Permanent Faculty Members:		53
Overall Program Ranking:		17th ²
	Among Public Schools:	6th ²
University of California, San Diego		
Avg Admitted Freshman GPA:		4.03
Avg Admitted Freshman SAT1:		1282
Total Undergraduate Enrollment:		17,505
Ratio of Male to Female:		48:52
Total Undergraduate Degrees (00/01):		3,713
Undergraduate Graduation Rate:		78%
Mean Undergraduate GPA:		3.02
Total Graduate Enrollment:		2,999
Total Graduate Degrees (00/01):		991
Nobel Laureate Faculty:		10
National Academy of Sciences:		61
Overall School Ranking:		31st ³
	Among Public Schools:	7th ³

¹ Source: "Postsecondary Education Opportunity", March 1996.
² Source: Research-Doctorate Programs in the United States: Continuity and Change, a 1994 National Research Council study.
³ Source: USnews.com, "America's Best Colleges 2002."

For More Information

[UCSD Mathematics](http://www.math.ucsd.edu/)
<http://www.math.ucsd.edu/>

[Transfer Course Equivalencies](http://www.math.ucsd.edu/frontdesk/equivalencies/)
<http://www.math.ucsd.edu/frontdesk/equivalencies/>

[Math Testing and Placement](http://www.math.ucsd.edu/~mtp/)
<http://www.math.ucsd.edu/~mtp/>

Mathematics Faculty

Life is good for only two things, discovering mathematics and teaching mathematics. - Siméon Poisson

COMMUTATIVE AND NONCOMMUTATIVE ALGEBRA / GROUP THEORY		STATISTICS / BIOSTATISTICS / BIOMATHEMATICS
Helmut Rohrl (Ph.D. Munich) Professor Emeritus Nonassociative Algebra, Convexity Theories	Zheng-Xu He (Ph.D. UCSD) Professor Topology, Geometry, Complex Variables	Ian Abramson (Ph.D. UC Berkeley) Professor Statistics
	Hans Lindblad (Ph.D. Lund) Associate Professor Nonlinear Wave Equations, Partial Differential Equations	John Evans (Ph.D. UCLA, M.D. Cornell) Professor Emeritus Biomathematics, Applied Mathematics
	Lei Ni (Ph.D. UC Irvine) Assistant Professor Differential Geometry, Partial Differential Equations, Complex Geometry and Analysis, Riemannian Geometry	Leonard Haff (Ph.D. Oregon State) Professor Mathematical Statistics, Combinatorial Game Theory
	Kate Okikiolu (Ph.D. UCLA) Associate Professor Geometric Analysis, Spectral Geometry	John O’Quigley (Ph.D. Leeds) Professor Biostatistics
Adrian Wadsworth (Ph.D. Chicago) Professor Commutative Algebra	Burton Rodin (Ph.D. UCLA) Professor Emeritus Complex Analysis, Riemann Surfaces	Dimitris Politis (Ph.D. Stanford) Professor Mathematical Statistics, Time Series Analysis, Bootstrap Methods, Nonparametrics
John Wavrik (Ph.D. Stanford) Associate Professor Commutative Algebra, Computation	Linda Rothschild (Ph.D. MIT) Professor, Dept. Vice-Chair Several Complex Variables, Partial Differential Equations	Yosef Rinott (Ph.D. Weizmann Institute) Professor Emeritus Mathematical Statistics, Applied Probability
Hans Wenzl (Ph.D. Pennsylvania) Professor Operator Algebras, Algebra		
Efim Zelmanov (Ph.D. Novosibirsk) Professor Jordan Algebras, Infinite Discrete Groups, Profinite Groups		

MATHEMATICS EDUCATION

DISCRETE MATHEMATICS / LOGIC / THEORETICAL COMPUTER SCIENCE		
Edward Bender (Ph.D. Caltech) Professor Combinatorics	Guershon Harel (Ph.D. Ben-Gurion) Professor Mathematics Education	Murray Rosenblatt (Ph.D. Cornell) Professor Emeritus Mathematical Statistics, Probability

TOPOLOGY / GEOMETRY / MATHEMATICAL PHYSICS
Jay Fillmore (Ph.D. Minnesota) Professor Emeritus Geometry

Samuel Buss (Ph.D. Princeton) Professor Mathematical Logic, Proof Theory, Computer Science, Computational Complexity, Computer Graphics	Thomas Enright (Ph.D. U. of Washington) Professor Group Representations, Lie Algebras	Theodore Frankel (Ph.D. UC Berkeley) Professor Emeritus Mathematical Physics, Differential Geometry, Morse Theory
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Adriano Garsia (Ph.D. Stanford) Professor Combinatorics, Representation Theory, Theoretical Computer Science, Real Analysis, Probability Theory	Ronald Evans (Ph.D. Illinois) Professor Number Theory, Special Functions Over Rings/Fields	Michael Freedman (Ph.D. Princeton) Professor Emeritus Geometric Topology
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Fan Chung Graham (Ph.D. Pennsylvania) Professor Discrete Mathematics, Spectral Graph Theory	Wee Teck Gan (Ph.D. Harvard) Assistant Professor Number Theory, Representation Theory, Automorphic Forms	Mark Gross (Ph.D. UC Berkeley) Professor Algebraic Geometry, Differential Geometry
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Jeffrey Remmel (Ph.D. Cornell) Professor, Associate Dean Combinatorics, Mathematical Logic, Computer Science, Hybrid Control	Harold Stark (Ph.D. UC Berkeley) Professor Number Theory	Patrick Ledden (Ph.D. Stanford) Sr. Lecturer, Muir Provost Topology
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Van Vu (Ph.D. Yale) Assistant Professor Combinatorics, Theoretical Computer Science, Combinatorial Number Theory	Audrey Terras (Ph.D. Yale) Professor Number Theory, Harmonic Analysis on Symmetric Spaces	James Lin (Ph.D. Princeton) Professor Algebraic Topology
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	Nolan Wallach (Ph.D. Washington U.) Professor Representation Theory, Lie Groups	David Meyer (Ph.D. MIT) Professor Mathematical Physics, Quantum Computation
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FUNCTIONAL ANALYSIS / CONTROL THEORY / PERTURBATION THEORY / APPROXIMATION THEORY	NUMERICAL ANALYSIS / NUMERICAL PARTIAL DIFFERENTIAL EQUATIONS / SCIENTIFIC COMPUTATION	Jeffrey Rabin (Ph.D. Stanford) Professor Mathematical Physics, Supermanifolds and Supervarieties, String Theory
Jim Agler (Ph.D. Indiana) Professor Operator Theory	Randolph Bank (Ph.D. Harvard) Professor Numerical Partial Differential Equations	

J. William Helton (Ph.D. Stanford) Professor Linear and Nonlinear Operators, Non-Commutative Computer Algebra, Approximation	James Bunch (Ph.D. UC Berkeley) Professor, Dept. Chair Numerical Linear Algebra, Signal Processing	Justin Roberts (Ph.D. Cambridge) Associate Professor Low Dimensional Topology, Topological Quantum Field Theory
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William McEneaney (Ph.D. Brown) Associate Professor Optimal Control, Nonlinear Systems	Li-Tien Cheng (Ph.D. UCLA) Assistant Professor Image Processing, Level Set Methods	Peter Teichner (Ph.D. Mainz) Professor Geometric Topology
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Al Shenk (Ph.D. Stanford) Lecturer Emeritus Partial Differential Equations, Numerical Analysis	Philip Gill (Ph.D. London U.) Professor Numerical Optimization	
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Donald Smith (Ph.D. Stanford) Professor Emeritus Differential Equations, Singular Perturbation Theory	Hubert Halkin (Ph.D. Stanford) Professor Emeritus Optimization Theory, Computer Science	
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Daniel Wulbert (Ph.D. Texas) Professor, Dept. Vice-Chair Approximation Theory, Functional Analysis	Michael Holst (Ph.D. Illinois) Associate Professor Numerical Partial Differential Equations, Scientific Computation	
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GEOMETRIC ANALYSIS / COMPLEX ANALYSIS / PARTIAL DIFFERENTIAL EQUATIONS	PROBABILITY / STOCHASTIC PROCESSES
Salah Baouendi (Ph.D. Paris) Professor Several Complex Variables, Partial Differential Equations	Bruce Driver (Ph.D. Cornell) Professor Probability, Geometry

Bennett Chow (Ph.D. Princeton) Professor Differential Geometry, Geometric Evolution	Patrick Fitzsimmons (Ph.D. Case Western Reserve) Professor Probability
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Peter Ebenfelt (Ph.D. Royal Inst. of Technology) Professor Several Complex Variables, Complex Geometry, Partial Differential Equations	Ronald Getoor (Ph.D. U. of Michigan) Professor Emeritus P r o b a b i l i t y
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John Eggers (Ph.D. UCSD) Lecturer Several Complex Variables, Partial Differential Equations	Michael Sharpe (Ph.D. Yale) Professor Probability
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Carl FitzGerald (Ph.D. Stanford) Professor Approximation Theory, Complex Analysis, Differential Games	Ruth Williams (Ph.D. Stanford) Professor Probability Theory, Stochastic Processes
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AWARDS WON BY UCSD MATH FACULTY

Academy of Arts & Sciences	5
National Academy of Sciences	4
Sloan Fellowships	11
Guggenheim Fellowships	4
Hellman Fellowships	1
von Humboldt Fellowships	1
MacArthur Fellowships	1
Fields Medal	3
Veblen Prize	2
College de France Medal	1
Aizenstadt Prize	1
Rollo Davidson Prize	1
National Medal of Science	1

San Diego Weather													
	January	February	March	April	May	June	July	August	September	October	November	December	
Avg. High	65	66	66	68	69	72	76	77	77	74	71	66	
Avg. Low	48	50	52	55	58	61	65	66	65	60	53	49	
Avg. Precip	2.2"	1.6"	1.9"	0.8"	0.2"	0.1"	T	0.1"	0.2"	0.4"	1.1"	1.4"	