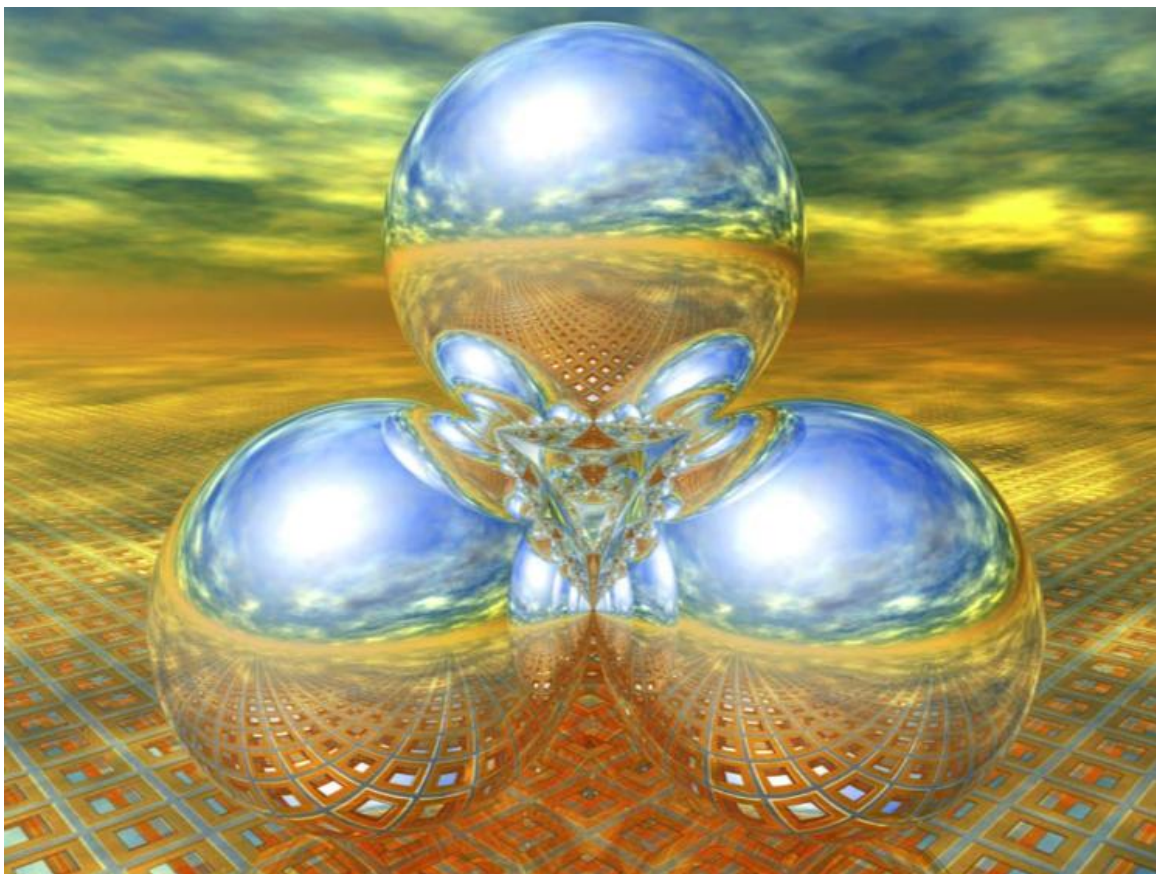


**GRADUATE STUDENT  
HANDBOOK  
2009-2010**



**DEPARTMENT OF MATHEMATICS  
University of California, Irvine**

*Wada Basins*

*A chaotic dispersion with four identical, highly reflecting balls in pyramid form.*

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**Taken from the Mathematical Research Institute of Oberwolfach**

<http://www.zahlenwissen.mmcd.de/medien.php?cid=1044&mid=80>

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# **INTRODUCTION**

## **THE UNIVERSITY OF CALIFORNIA**

### **MARK G. YUDOF, PRESIDENT**

Welcome to the University of California.

Mark G. Yudof was named the 19<sup>th</sup> president of the University of California on March 27, 2008, and took office June 16, 2008. He leads a university system with 10 campuses, five medical centers, three affiliated national laboratories, and a statewide agriculture and natural resources program. The UC system has 220,000 students, 180,000 faculty and staff, more than 1.6 million alumni, and an \$18 billion annual operating budget.

Yudof served as chancellor of the University of Texas System from August 2002 to May 2008 and as president of the four-campus University of Minnesota from 1997 to 2002. Before that, he was a faculty member and administrator at the University of Texas at Austin for 26 years, serving as dean of the law school from 1984 to 1994 and as the university's executive vice president and provost from 1994 to 1997. His career at UT Austin began in 1971, when he was appointed an assistant professor of law. He has continued to teach throughout his administrative career.

While on the UT law faculty, he was also a visiting professor at the law schools at the University of Michigan and UC Berkeley, and conducted research as a visiting fellow at the University of Warwick in England.

Yudof is a distinguished authority on constitutional law, freedom of expression and education law who has written and edited numerous publications on free speech and gender discrimination, including "Educational Policy and the Law." He is a fellow of the American Academy of Arts and Sciences and a member of the American Law Institute. He served a two-year term on the U.S. Department of Education's Advisory Board of the National Institute for Literacy and currently is a member of the President's Council on Service and Civic Participation.

A Philadelphia native, he earned an LL.B. degree (cum laude) in 1968 from the Law School of the University of Pennsylvania, where he also earned a B.A. degree (cum laude with honors in political science) in 1965. He was awarded the Alumni Award of Merit (2001) and the prestigious James Wilson Award (2004) by the University of Pennsylvania Law School for his many years of service and contributions to the legal community.

## **THE IRVINE CAMPUS**

### **Michael V. Drake, M.D., Chancellor**

The Irvine campus is located in coastal Orange County, approximately five miles from the Pacific Ocean and forty-five miles south of Los Angeles. The general campus, one of the largest in area, has been designed to permanently retain an open feeling, with major buildings arranged in a circle around a beautiful park which is used for music festivals, activities and graduation ceremonies.

Originally a quiet vacation getaway for Los Angeles residents, Orange County has developed into a booming metropolis of almost four million people and rivals the Bay Area in economic growth. Its temperate climate, beautiful coastal surroundings, dynamic multicultural business, and high tech industrial communities attract new residents from across the country and around the world.

Founded in 1965, the University of California, Irvine combines the strengths of a major research university with the bounty of an incomparable Southern California location. With a commitment to cutting-edge research, teaching, learning, and creativity, UCI is a driving force of innovation and discovery that benefits our local, national, and global communities in multiple ways.

With more than 220,000 students, 180,000 faculty and Staff, UCI is among the fastest-growing campuses in the University of California system. Increasingly a first-choice campus for students, UCI ranks among the top U.S. universities in the number of undergraduate applications and continues to admit freshmen with highly competitive academic profiles. Orange County's second-largest employer, UCI generates an annual economic impact on the county of \$3.7 billion.

## **Excellence in Academics & Research**

UCI is a center for quality education that fosters passionate, enthusiastic, and ongoing expansion of knowledge and approaches to scholarship. Graduates are prepared to be global citizens equipped with the tools of analysis, expression, and cultural understanding required for leadership in today's world.

UCI is consistently ranked among the nation's best universities – public and private – with achievements in a broad range of fields that have garnered high national rankings for numerous schools, departments, and programs. Three UCI researchers have won Nobel Prizes – most recently Irwin Rose, in chemistry, in 2004.

Interdisciplinary research, a UCI hallmark, is evident in Calit2 (California Institute for Telecommunications and Information Technology), Center for the Study of Democracy, Institute of Transportation Studies, Institute for Genomics and Bioinformatics, Newkirk Center for Science & Society, Dr. Samuel M. Jordan Center for Persian Studies & Culture, as well as innovative instructional programs in biomedical engineering, health sciences, international studies, global cultures, and arts and technology, to name a few.

UCI's tradition of combining research and teaching to produce new leaders for our region, state and nation has resulted in the extraordinary high quality of the campus's research and graduate programs, an extensive commitment to undergraduate education, and a growing number of professional schools and programs of academic importance and great social significance. Recent additions include programs in public health, pharmaceutical sciences and nursing science, as well as a school of law scheduled to open in 2009.

## **A Prime Resource for the Community**

UCI reaches beyond its classrooms and laboratories to address societal issues and support human development. In the health sciences, UCI is noted for its research on cancer, the neurosciences, and the genetic underpinnings of disease. UC Irvine Medical Center, Orange County's only university hospital, is building a new world-class facility that, upon completion in 2009, will house the latest technologies and strengthen UCI's ability to provide specialized medical and surgical treatments to the region's citizens. A major intellectual and cultural center, UCI engages the community through many public activities and events. Campus speakers have included Nobel Peace Prize winners such as His Holiness the XIV Dalai Lama, former Soviet leader Mikhail Gorbachev, Iranian human rights activist Shirin Ebadi, and Kenyan environmental advocate Wangari Maathai, each of whom also received the UCI Citizen Peacebuilding Award for efforts toward world peace.

## **Building an Even Brighter Future**

UCI's vital partnerships with the community continue to expand. Generous support has led to culturally significant projects such as the Arts Plaza designed by Maya Lin, creator of the Vietnam Veterans Memorial. Prestigious faculty chairs have been endowed campuswide, with those in the Donald Bren School of Information & Computer Sciences, The Paul Merage School of Business and The Henry Samueli School of Engineering established through the generous support of their namesakes. UCI is a strategic partner in OCTANe, an entrepreneurial network driving innovation and growth among Orange County's biomedical and information technology businesses. Development also continues on the 185-acre University Research Park, adjacent to campus and offering companies collaborative opportunities in medical research, biotechnology, engineering, computer science and business. UCI is benefiting the community and the world in countless ways through its scholarly, scientific, creative, and economic contributions. UCI now has embarked on a strategic plan that will ensure the campus continues to inspire excellence as it fulfills its research, teaching, and public service missions in the decades ahead.

## **THE SCHOOL OF PHYSICAL SCIENCES**

Home to two of UC Irvine's Nobel Laureates, the School of Physical Sciences offers educational and research opportunities for tomorrow's scientific work forces through the departments of Chemistry, Earth System Science, Mathematics and Physics & Astronomy.

The school gained international prominence in 1995 when professors F. Sherwood Rowland (chemistry) and Frederick Reines (physics) each received the Nobel Prize, making UCI the first public university with faculty receiving Nobel prizes in two different fields in the same year. Research in the school also rates among the nation's finest in atmospheric chemistry, organic chemistry, geoscience, and elementary particle physics. Its researchers play leadership roles in large international particle physics projects, United Nations environmental surveys and in providing the scientific information that assists in the drafting of international treaties.

With more than 1,400 undergraduate and graduate students, the school is one of the nation's largest producers of bachelors' degree graduates, ranking fifth nationally in chemistry and eleventh in physics. Doctoral degrees also are granted from all four departments.

State-of-the-art multidisciplinary research takes place at the Institute for Surface and Interface Science, the Chemical and Material Physics Program, the Program in Protein Engineering, the Program in Polymer and Material Chemistry, the Center for Interdisciplinary Synthesis and the Center for Global Environmental Change Research. The school also features specialized research facilities for molecular modeling, X-ray crystallography, mass spectrometry, NMR research, pulsed power plasma fusion reactor research and advanced cryogenics. Physical science faculty regularly use internationally known facilities such as the Keck Telescope; Super-Kamiokande (Japan) and AMANDA (Antarctica) neutrino detectors; Fermilab, Los Alamos and Brookhaven National Laboratories; the Chandra Observatory; and the Jet Propulsion Lab.

**Dean John C. Hemminger** named Dean in July of 2006; John C. Hemminger is a professor of chemistry who is internationally recognized for his research in Surface Chemistry and Physics.

## **FACILITIES AND RESOURCES**

**The UC Irvine Libraries'** collections support the teaching and research mission of the campus. The UCI Libraries hold more than 2.2 million volumes, subscribe to nearly 20,000 journals in print, and provide access to more than 10,000 online journals and scholarly resources. The Libraries also maintain a collection of 2.5 million microforms—as well as more than 77,000 cartographic and graphic materials, computer files, audio recordings, films, and videos.

The Libraries provide access via its online catalog ANTPAC to a growing number of licensed Web-based bibliographic and full-text resources (including electronic journals, e-books, reference works, and other useful subject resources).

The Science Library is one of the largest consolidated science, technology, and medicine libraries in the nation. Serving the schools of Biological Sciences, Engineering, Information and Computer Science, Physical Sciences, portions of Social Ecology, and the College of Medicine, the Science Library offers a wide range of traditional print and electronic information resources. The facility features an Interactive Learning Center, a reference consultation and user self-search room, 2,200 reader stations, a current periodicals reading room and special reading rooms for graduate students. For additional information visit the library at [www.lib.uci.edu](http://www.lib.uci.edu).

**The Teaching, Learning & Technology Center's (TLTC)** mission is to enhance student learning through faculty and Teaching Assistant (TA) pedagogical development; to foster technological and instructional innovation; to promote a teaching culture at the research university; and to stimulate the scholarship of teaching and learning. To these ends, the TLTC offers a variety of services and programs, most of which are free to all UCI instructors. For additional information visit [www.tlhc.uci.edu](http://www.tlhc.uci.edu).

**Network and Academic Computing Services (NACS)** provides information technology leadership, expertise, infrastructure, and services in support of the research, teaching, and community service goals of the University. They proactively and collaboratively work with campus colleagues to meet or exceed the service expectations of UCI faculty, students, and staff. For advanced scientific computer needs, the Office of Academic Computing operates a Convex C240 with one gigabyte of memory and greater than 10 gigabytes of disk. Visit NACS at [www.nacs.uci.edu](http://www.nacs.uci.edu).

## **THE DEPARTMENT OF MATHEMATICS**

The Department of Mathematics is engaged in teaching and fundamental research in a wide variety of mathematical disciplines, and offers graduate students the opportunity to fashion a thorough program of study leading to professional competence in mathematical research, or in an area of application.

The Department of Mathematics is committed to a high standard of excellence. Among the faculty are internationally known experts in many areas of algebra, analysis, and geometry, as well as in applied mathematics. These areas include algebraic geometry, algebraic topology, arithmetic geometry, complex variables, differential geometry, dynamical systems, ergodic theory, geometric analysis, mathematical biology, mathematical logic, mathematical physics, number theory, numerical analysis, partial differential equations, probability, set theory and non-linear analysis. The continuing recruitment of new faculty is aimed at attaining the highest quality of teaching and research.

## **THE MATHEMATICS GRADUATE PROGRAM**

Graduate courses are designed to meet the needs of students pursuing graduate work in mathematics and related areas. The active fields of research covered include real analysis, complex analysis, algebra, functional analysis, geometry, topology, probability and statistics, ordinary and partial differential equations, mathematical logic, mathematical biology, and computational and applied mathematics.

In addition to formal courses and research, seminars are held frequently. Department faculty and outstanding mathematicians from around the world present their latest research findings in various fields of mathematics. Topics vary from year to year reflecting the expertise of both tenured and visiting faculty. A faculty member specializing in the subject field conducts each seminar. For seminar schedules go to *Seminars/Colloquium* at the Math Department website, [www.math.uci.edu](http://www.math.uci.edu).

Graduate students are essential to UC's research enterprise and as such contribute directly to California's well being and its global competitiveness. The Master Plan for Higher Education assigns UC an exclusive role providing public academic and professional doctoral education and in this unique regard, helping to meet the state's workforce needs. As that workforce needs evolve and grow, UC remains committed to increasing the number of its high-quality and diverse graduate and professional student bodies. To this end, UC recently developed long-range enrollment projections to 2020, which include a 47 percent increase in graduate enrollment with special emphasis on meeting the state's workforce needs in the health sciences.

### **Graduate Program in Mathematical and Computational Biology**

The graduate program in Mathematical and Computational Biology (MCB) is a one-year "gateway" program designed to function in concert with selected department programs, including the Ph.D. in Mathematics. Detailed information is available online at <http://mcsb.bio.uci.edu/> and in the School of Biological Sciences.

### **Graduate Studies Committee**

This committee is responsible for all policy matters relating to the Mathematics Department graduate program. The committee oversees Departmental requirements for graduate degrees, revision of graduate courses and catalog descriptions, standards and procedures. The committee recommends graduate courses and seminar teaching assignments to the Chair. They oversee the administration of the written Master's and Ph.D. qualifying examinations and make recommendations for students that are not making satisfactory progress. The committee hears appeals from graduate students and may recommend that students be advanced from one degree program to another or be terminated in their graduate studies in Mathematics. The committee reviews and advises on financial support for continuing graduate students.

The Chair, Vice Chair, Graduate Studies Committee, Graduate Admissions and Advising Committee and the TA Training Committee are responsible for overseeing the graduate program. The Graduate Affairs Officer handles administrative operations. Contact information is available from the *Graduate Studies* link at the Math Department website.

### **TA Training Committee**

This committee advises TAs on teaching matters and provides instruction and guidance for teaching assistants throughout their TA careers. The committee assists new TAs in developing high quality teaching techniques and becoming familiar and efficient in the role of teacher.



In coordination with the Teaching, Learning and Technology Center (TLTC) this committee runs an orientation and training program for all TAs at the beginning of Fall Quarter. The committee members are listed on the Math Department website.

## **REQUIREMENTS FOR THE DEGREES**

### **MASTER OF SCIENCE IN MATHEMATICS**

The Master's program serves a dual purpose. For some students it will be a terminal program of mathematics education; for others it will lead to study and research at the doctoral level. To earn the Master of Science degree, the student must satisfy course and residency requirements, and pass Comprehensive Examinations administered by the Graduate Studies Committee of the Department.

The total number of required courses for the M.S. degree is 12, completed with satisfactory performance. Students are required to complete at least one series of the following courses: Mathematics 210A-B-C, 220A-B-C, or 230A-B-C. At most one undergraduate course may count as an elective course, provided it is sponsored by rank faculty and approved by the Graduate Advisor. At most one elective course (at least three units) is allowed outside the Department.

Students will take Advisory Examinations in Algebra and Analysis upon entrance to the graduate program. The Advisory Examination in Algebra is based on the courses Mathematics 120A and 121A-B plus some advanced topics in group theory and linear algebra; students who do not pass this examination will be asked to take the Mathematics 206A-B-C sequence. The Advisory Examination in Analysis is based on the courses Mathematics 140A-B-C-D; students who do not pass this examination will be asked to take the Mathematics 205A-B-C sequence.

Students must pass two Comprehensive Examinations, one in Algebra and one in Analysis, before the beginning of their second year in the graduate program and will be given, at most, two chances to pass each examination. Students who have passed the Advisory Examination will be exempted from taking the corresponding Comprehensive Examination.

*Students who fail to pass the required examinations satisfactorily within the period specified will be recommended for academic disqualification by the Graduate Dean.*

Mathematics 199, 297, 298, 299, and 399 may not be used to fulfill course requirements.

The residency requirement ordinarily is satisfied by full-time enrollment for three quarters immediately preceding the award of the M.S. degree. When appropriate, a leave of absence may be granted between matriculation and the final quarters of study.

If the candidate is not advanced before the beginning of the quarter in which all requirements are completed, the degree will not be conferred until the end of the following quarter. Deadlines for submission of the Application for Advancement to Candidacy are published on the Graduate Divisions website, filing fees and deadlines.

### **MASTER OF SCIENCE IN MATHEMATICS WITH A TEACHING CREDENTIAL**

In cooperation with the UCI Department of Education, the Department of Mathematics sponsors a coordinated program for the M.S. degree in Mathematics and the California Single Subject Teaching Credential. The requirements for this option are the same as the Master of Science in Mathematics listed above.

The student will complete the requirements for the Masters degree with the Mathematics Department, (generally a two year commitment), then petition with the UCI Department of Education to take the Department of Educations credential courses (generally a one year commitment). The student will be required to meet the requirements of the Department of Education, to include (CBEST, CSET, TB test, Certificate of Clearance). Prospective graduate students interested in this program should so indicate on their applications. A detailed description of the program can be requested from the Department of Education.

### **Advancement to Candidacy**

All Master's students prior to the beginning of the final quarter of enrollment must be advanced to candidacy for the degree. An application for Advancement to Candidacy must be completed by the student and submitted for approval by the department. The approved application must be submitted to the Office of Graduate Studies at least 30 days before the opening of the quarter in which the degree is expected. If the candidate is not advanced before the beginning of the quarter in which all requirements are completed, the degree will not be conferred until the end of the following quarter. Deadlines for submission of the Application for Advancement to Candidacy are published on the Graduate Divisions website, filing fees and deadlines.

### **DOCTOR OF PHILOSOPHY IN MATHEMATICS**

Completion of all required coursework  
Completion of all written examinations, Comprehensive and Qualifying  
Completion of Advancement to Candidacy Oral Examination  
Completion of Teaching Experience  
Submission of Doctoral Dissertation

When accepted into the doctoral program, the student embarks on a program of formal courses, seminars, and individual study courses to prepare for the Ph.D. Qualifying Examinations, Advancement to Candidacy Examination, and Dissertation.

All students will take Advisory Examinations in Algebra and Analysis upon entrance to the graduate program. The Advisory Examination in Algebra is based on the courses Mathematics 120A and 121A-B, plus some advanced topics in group theory and linear algebra; students who do not pass this examination will be asked to take the Mathematics 206A-B-C sequence. The Advisory Examination in Analysis is based on material covered in Mathematics 140A-B-C-D; students who do not pass this examination will be asked to take the Mathematics 205A-B-C sequence. All students who take Mathematics 205A-B-C (Analysis) and 206A-B-C (Algebra) must pass the corresponding Comprehensive Examination, which covers the material of the Advisory Examination plus Mathematics 205 or 206, respectively. The Comprehensive Examination will be given in spring. If the exam(s) are not passed in spring, the Comprehensive exam will be taken in fall and must be passed by the beginning of the second year in the graduate program.

Each student must choose at least two series of the following three series of courses—Mathematics 210A-B-C (Real Analysis), 220A-B-C (Complex Analysis), or 230A-B-C (Algebra)—and pass two written Qualifying Examinations from these courses before the end of their third year. Each examination may be taken twice. A student who passes the examination prior to taking the corresponding course will be exempted from taking the course. The Department will offer the Qualifying Examinations twice each year, during orientation week before the fall quarter and at the end of spring quarter.

By the end of their second year, students must declare a major specialization from the following areas: Algebra, Analysis, Applied and Computational Mathematics, Geometry and Topology, Logic, or Probability. Students are required to take two series of courses from their chosen area. (Students who later decide to change their area must also take two series of courses from the new area.) Additionally, all students must take two series of courses outside their declared major area of specialization. Special topics courses within certain areas of specialization and courses counted toward the M.S. degree, other than Mathematics 205A-B-C and 206A-B-C, will count toward the fulfillment of the major specialization requirement.

By the beginning of their third year, students must have an advisor specializing in their major area. With the advisor's aid, the student forms a committee for the Advancement to Candidacy oral examination. This committee will be approved by the Department on behalf of the Dean of Graduate Studies and the Graduate Council and will have five faculty members. At least one, and at most two, of the members must be faculty from outside the Department. Before the end of the third year, students must have a written proposal, approved by their committee, for the Advancement to Candidacy oral examination. The proposal should explain the role of at least two series of courses from the student's major area of specialization that will be used to satisfy the Advancement to Candidacy requirements. The proposal should also explain the role of additional research reading material as well as providing a plan for investigating specific topics under the direction of the student's advisor(s). The courses Mathematics 210A-B-C, 220A-B-C, and 230A-B-C cannot count for both Qualifying Examinations and the course requirement for Advancement to Candidacy Examinations. After the student meets the requirements, the Graduate Studies Committee recommends to the Dean of Graduate Studies the advancement to candidacy for the Ph.D. degree. Students should advance to candidacy by the beginning of their fourth year.

After advancing to candidacy, a student is expected to be fully involved in research toward writing his or her Ph.D. dissertation. Ideally, a student should keep in steady contact/interaction with his or her Doctoral committee.

Teaching experience and training is an integral part of the Ph.D. program. All doctoral students are expected to participate in the Department's teaching program.

The candidate must demonstrate independent, creative research in Mathematics by writing and defending a dissertation that makes a new and valuable contribution to mathematics in the candidate's area of concentration. Upon advancement to candidacy a student must form a Thesis Committee, a subcommittee of the Advancement Examination Committee, consisting of at least three faculty members and chaired by the student's advisor. The committee guides and supervises the candidate's research, study, and writing of the dissertation; conducts an oral defense of the dissertation; and recommends that the Ph.D. be conferred upon approval of the doctoral dissertation. The normal time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

## **Area Requirements**

Ph.D. students will choose from one of six areas of specialization in the Mathematics Department, which determines coursework requirements. Each area of specialization will have a core course, which the Department will do its best to offer each year. The Department will offer other courses every other year, or more frequently depending on student demands and other Department priorities.

Students are required to take two series of courses from their chosen area and take two series of courses outside their declared major area of specialization. Special topics courses within certain areas of specialization and courses counted toward the M.S. degree, other than Mathematics 205A-B-C and 206A-B-C, will count toward the fulfillment of the major specialization requirement.

Algebra: Math 230ABC (core), Math 232ABC, Math 233ABC, 234ABC, 235ABC, 239ABC

Analysis: Math 210ABC(core), Math 220ABC(core), Math 260ABC, Math 295ABC

Applied and Computational Mathematics: Math 290ABC (core), Math 225ABC, Math 226ABC, Math 227ABC, Math 295ABC

Geometry and Topology: Math 218ABC(core), Math 222ABC, Math 240ABC, Math 245ABC, Math 250ABC

Logic: Math 280ABC (core), Math 281ABC, Math 282ABC

Probability: Math 210ABC, Math 201ABC, Math 270ABC, Math 271ABC, Math 272ABC

### **PHD REQUIREMENTS SUMMARIZED:**

**By the beginning of the 2nd year:** Pass Comprehensive exams in Algebra and Analysis.

**By end of the 2nd year:** Declare a major specialization.

**By the beginning of the 3rd year:** Have an advisor specialist in the major area and form a committee for the Advancement to Candidacy oral exam.

**Before the end of the 3rd year:** Have a written proposal, approved by the committee, for the Advancement to Candidacy Examination. Qualifying exams must be passed before the end of the 3rd year.

**By the beginning of the 4th year:** Students should have advanced to Candidacy.

Upon Advancement to Candidacy: Form a Thesis Committee, a subcommittee of the Advancement Examination Committee.

**Completion of the PhD:** Average completion time is five years; maximum time permitted is seven years. The Department will not financially support students past their sixth year in the PhD program.

### **DEPARTMENTAL/TUITION SUPPORT PHD REQUIREMENTS SUMMARIZED**

We are in the middle of an unprecedented fiscal crisis. This does affect us substantially, and in particular has left the graduate program grossly under funded with even deeper cuts to come. While we are still committed to continuing support of students who perform well in both teaching and studies and pass all PhD requirements on time; we are forced to become significantly less lenient towards those who take longer to achieve various milestones.

#### **Departmental Support:**

Departmental support will not be offered to any graduate student beginning their 2nd academic year of study that *has not passed all comprehensive exams*.

Departmental Support will not be offered to any graduate student beginning their 3<sup>rd</sup> academic year of study that *has not passed at least one (1) qualifying exam*.

Departmental support will not be offered to any graduate student beginning their 4<sup>th</sup> academic year of study that has not passed all qualifying exams.

Departmental support will not be offered to any graduate student beginning their 5<sup>th</sup> academic year of study that has not advanced to PhD candidacy.

Departmental support will not be offered to any graduate student after the 6<sup>th</sup> year of study.

### **Tuition Support:**

Tuition support will not be offered to students who have not passed at least one (1) qualifying exam by the beginning of their 2<sup>nd</sup> academic year of study.

Tuition support will not be offered to students who have not advanced to candidacy by the beginning of their 3<sup>rd</sup> academic year of study.

## **QUALIFYING EXAMINATIONS**

Ph.D Qualifying examinations:

Algebra

Complex Analysis

Real Analysis

All students seeking the PhD degree must successfully complete two examinations before the end of the third year of entering the graduate program. Additionally, all students entering with an M.S. degree from another institution must pass one exam within one year.

**Only two attempts are allowed for a Ph.D. student on each exam.**

A typical scenario for taking each of the exams is the following: if a student takes, for example, the course in complex analysis (Mathematics 220A-B-C) during the academic year, he or she is expected (but not required) to take the qualifying examination in complex analysis in June, in the case that the student needs more time to review the material, he/she would take the exam in September. The same applies to the other courses which prepare students for the qualifying examinations, that is, Mathematics 230A-B-C (algebra) and Mathematics 210A-B-C (real analysis). If a student needs to take any of these examinations a second time, he or she may do so within a year provided the student is within the current time requirements described above.

*Students who fail to pass the required examinations satisfactorily within the period specified would be recommended for academic disqualification by the Graduate Dean*

The suggested syllabi, including references to current and previously used texts, for each exam follows.

### **Real Analysis**

Suggested Syllabus for Real Analysis Qualifying Examination

## **I. Metric Spaces**

Distances and metric spaces. Open sets, closed sets, cluster points, closure of a set. Dense subsets, separable spaces. Cauchy sequences, complete spaces. Compact spaces. Continuous mappings, uniform continuity.

## **II. Lebesgue Measure on the Real Line**

Measure on a  $\sigma$ -field. Construction of the Lebesgue measure space via outer measure. Lebesgue measurable sets and Borel sets. Lebesgue measurable functions. Convergence a. e., convergence in measure, Egorov's theorem. Approximation of Lebesgue measurable functions by continuous functions and step functions.

## **III. Lebesgue Integral on the Real Line**

Integration of Lebesgue measurable functions. Dominated convergence Riemann integrability. Approximation by truncation, approximation by continuous functions and step functions.

## **IV. Differentiation and Integration**

Functions of bounded variation. Absolutely continuous functions and singular functions. Indefinite integrals.

## **V. The $L^p$ -spaces**

Normed linear spaces, Banach spaces. Representation theorem for bounded linear functions on  $L^p$  - spaces.

## **VI. Abstract measure and integration**

Signed measures, Radon-Nikodym and Lebesgue decomposition theorems, Outer measures, extension theorem, Lebesgue-Stieltjes integral, product measures, Fubini-Tonelli theorem.

## **References---Real Analysis**

### **Real Analysis, by H.L. Royden, 3<sup>rd</sup> edition 1988**

Chapters 3, 4 pp. 54--96; Chapter 5 sections 1, 2, 3, 4 pp 97--112;

Chapter 6 pp. 118--135; Chapter 7 section 1, 2, 3, 4, 5, 6, 7 pp. 139--157;

Chapter 11 pp. 253--281; Chapter 12 pp. 288--312

or *Measure and Integral*, by R.L. Wheeden and A. Zygmund 1977

Chapters 1, 2, 3, 4, 5 pp. 1--85; Chapter 6 sections 1, 2, 3 pp. 87--97; Chapter

7 sections 1, 2, 3, 4 5 pp. 98--118; Chapter 8 sections 1, 2, 3, 4 pp. 125--135; Chapter

10 sections 1, 2, 3 pp. 161--181; Chapter 11 sections 1, 2, 3 pp. 193-201

## **Complex Analysis**

### **Suggested Syllabus for Complex Analysis Qualifying Examination**

#### **I. Complex Numbers and Functions**

The field of complex numbers, geometry of the complex plane, polar representation, the extended plane and spherical representation, analytic functions, power series, rational functions, elementary

functions (exponential, trigonometric and logarithmic), Cauchy-Riemann equations, Möbius transformations, cross ratio.

## II. Complex Integration and Cauchy's Theorem

Line integrals, power series representation of analytic functions, Cauchy's estimate, Cauchy's theorem.

## III. Applications of Cauchy's Theorem

Liouville's theorem, Fundamental theorem of Algebra, identity (=uniqueness) theorem, maximum modulus theorem, Schwarz's lemma, Morera's theorem, index (=winding number) of a closed curve, Cauchy's integral formula, argument principle, open mapping theorem.

## IV. Singularities

Removable singularities, poles, order and singular part of a pole, Laurent expansions, essential singularities, Casorati-Weierstrass theorem, residues, residue theorem, evaluation of real integrals, Rouché's theorem.

## V. Normal families, Montel theorem, the Riemann mapping theorem, Automorphism groups of the unit disc, punch disk, etc. Conformal mappings (or angle preserving maps) between two given regions.

## VI. Harmonic functions

Mean value property, Maximum principles, Jensen's formula, Poisson's formula, Dirichlet problem for disk, and Harnack's theorem.

## References---Complex Analysis

### **Functions of One Complex Variable, by J. B. Conway 2<sup>nd</sup> edition, 1978**

Chapter 1 pp. 1--10; Chapters 3, 4, 5 pp. 30--127; Chapter 6, sections 1, 2 pp. 128--133; Chapter 7, sections 1, 2, 4 pp. 142--154, 160--163; Chapter 10, sections 1, 2 pp. 252--263.

### **Complex Analysis, by J. Bak and D.J. Newman 1982**

Chapters 1, 2, 3, 4, 5, 6, 7 pp. 1--85; Chapters 9, 10 pp. 96--118; Chapter 11 section 1 pp. 119--127; Chapter 14, pp. 169--174; Chapter 16 pp. 184--190

Complex Analysis, by Lars V. Ahlfors.

## Suggested Syllabus for Algebra Qualifying Examination

Linear Algebra:

Vector spaces and bases; linear transformations and their matrix representations; characteristic and minimal polynomials; eigenspaces and eigenvalues; diagonalization; rational and Jordan canonical forms; inner product spaces; orthonormal bases; isometric diagonalizability (that is, diagonalization via unitary or orthogonal matrices).

### **I. Groups:**

Groups and group homomorphisms and isomorphisms; cyclic groups; cosets; Lagrange's Theorem; normal subgroups; quotient groups; the isomorphism theorems; groups acting on sets; Sylow theory; free groups; permutation groups; solvable groups.

## II. Rings:

Rings, ideals and homomorphisms; quotient rings; isomorphism theorems for rings; polynomial rings; principal ideal domains; unique factorization; Gauss's Lemma.

## III. Modules:

Modules and module homomorphisms; free modules and direct sums of modules; structure theorem for finitely generated modules over a p.i.d.; application to canonical forms.

## IV. Fields:

Field extensions; algebraic and transcendental extensions: basic concepts; splitting fields and normal extensions; separable extensions; Galois extensions and the fundamental theorem; roots of unity and cyclic extensions; solubility by radicals; finite fields; transcendence bases.

## References---Algebra

### LINEAR ALGEBRA

**Linear Algebra**, C.W. Curtis, *Chapters 2-7, pp. 16-227*

Or *Intro. to Matrices and Linear Transformations* (3<sup>rd</sup> edition), D.T. Finkbeiner, Chapters 1-9, pp. 1-305

### GRADUATE TOPICS:

*Basic Algebra I*, N. Jacobson, Chapters 1-4, pp. 26-270, 287-290

*Algebra* (2<sup>nd</sup> edition), or S. Lang, Chapters I, II, III, VII, pp. 3-93, 265-334

*Algebra*, Michael Artin

## SEMINARS AND COLLOQUIA

The Department of Mathematics sponsors colloquium lectures that are intended primarily for graduate students and members of the faculty. The Mathematics Departmental Faculty present many of the lectures. The department also invites Mathematicians from other institutions to present lectures. Such a lecture usually includes some expository remarks in the first part, and then perhaps a more specialized discussion toward the end.

The Department considers graduate students attendance at these lectures to be an important part of their program. There are opportunities to hear about some important current mathematical developments, to receive suggestions of topics for further study, and to acquire familiarity with various areas of mathematics. There is much for you to gain from the lectures even when you have not had previous contact with the mathematical topics that are discussed. In addition, the Graduate Student Colloquium runs several times each quarter. Faculty members give accessible talks on their research area. The intent is to expose students to the research of the Mathematics Faculty. First and second year students must register for the Graduate Seminar and **attendance is mandatory**.

The Department offers seminars on a variety of subjects; seminar announcements are listed on the Mathematic Department web site. Graduate student participation is encouraged.



## FEES AND EXPENSES

Fees for each quarter are due and payable in advance and within deadlines published in the Schedule of Classes. A student will not be officially enrolled in classes or receive any University benefits until fees are paid in full.

To obtain a fee waiver for Graduate Student Health Insurance, students must submit an application and demonstrate equivalent, or better, insurance. Graduate students should visit the Graduate Student Health Insurance web site for details. **Note: Student Health Insurance fees are refundable only when the Cancellation/Withdrawal process is initiated and the actual date of withdrawal is before the quarter begins.** Student Health Insurance Fees are subject to change.

<b>Educational/Registration Fee</b>	2912.00	2912.00	2912.00	8736.00
<b>Associated Student Fee</b>	9.00	9.00	9.00	27.00
<b>Student Center Fee</b>	136.50	136.50	136.50	409.50
<b>Bren Events Center Fee</b>	23.00	23.00	23.00	69.00
<b>Recreation Center Fee</b>	88.00	88.00	88.00	264.00
<b>Student Health Insurance</b>	782.00	781.00	781.00	2344.00
<b>Total California Resident</b>	3950.50	3949.50	3949.50	11849.50
<b>Nonresident Tuition</b>	4898.00	4898.00	4898.00	14694.00
<b>Educational Fee Differential</b>	114.00	104.00	104.00	342.00
<b>Total Nonresident</b>	8962.50	8961.50	8961.50	26885.50

Campus-based fees are NOT optional; these include Associated Student Fee, Student Center Fee, Bren Events Center Fee, Recreation Center Fee, Campus Spirit Fee, and Measure S.

### Non-Resident Tuition

Students who are not residents of California are charged in addition to fees, nonresident tuition, which is currently \$4,898 per quarter or \$14,694 per year for each year of attendance required by the curriculum. Nonresident Graduate Students on approved part-time status shall pay one-half the nonresident tuition. Students who have advanced to candidacy for the Ph.D. are eligible for a 75% reduction in the nonresident tuition for a period of three years. Outstanding non-resident applicants may be eligible for a full or partial tuition waiver as part of their admission award package.

This tuition reduction must have prior approval through the Office of Graduate Studies and the Registrar's Office. See the UCI General Catalogue for more information on tuition and fees as well as on exemptions from fees, including from the Non-Resident Tuition fee. ***The Mathematics Department expectation is that all non-resident students will obtain CA residency before their second year.***

### Full-Time Study

Full-time study is defined as enrollment in at least 12 units of upper-division or graduate academic credit per quarter, including credit for supervised research or teaching. The Graduate Studies Committee must approve course loads in excess of 16 units in advance.

## Fees for Part-Time Status

Graduate students on approved part-time status (enrollment in eight units or less per quarter, including physical education units) pay the full University Registration Fee and one-half the Educational Fee paid by students on full-time status. Part-Time status is open to Masters' students only. The student must be in satisfactory academic standing.

Those part-time students who have been determined to be nonresidents of the State of California are assessed one-half the Nonresident Tuition, in addition to the full Registration Fee and one-half the Educational Fee. Students seeking part-time status must obtain the approval from the home department and the Graduate Dean. Part-time status can be granted only for reasons of occupation, health, or family responsibilities. Ordinarily, graduate students who are not U.S. citizens or permanent residents are not eligible for part-time status because of Federal regulations governing student visa status. International students should contact the International Services Office for further information. Part-time status lapses at the end of each academic year; therefore, a student must reapply each year that part-time status is desired.

## Residency Requirements

If you have questions regarding the residence requirement for tuition purposes, contact the Residence Deputy, Registrar's Office, 215 Administration Building, University of California, 92697-4975; telephone (949) 824-6129.

No other University personnel are authorized to supply information relative to residence requirements for tuition purposes. Any student, following a final decision on residence classification by the Residence Deputy, may make written appeal to the Legal Analyst Residence Matters 300 Lakeside Drive, 7<sup>th</sup> Floor, University of California, Oakland, California 94612-3565 within 90 days after notification of the final decision by the Residence Deputy. ***It is the expectation of the Mathematics Department that all non-resident students will obtain CA residency before their second year.***

## Teaching Assistantships and Financial Support

Several types of financial assistance are available to Graduate Students at UCI. These include fellowships, teaching and research assistantships, and tuition fellowships for nonresident students, grants-in-aid and student loans. Entering or continuing Graduate Students may be awarded research or teaching assistantships, reader/grader assignments for all, or part of the academic year. The Financial Aid Office can provide information about assistance including grants and loans based upon financial need. Additional information regarding financial aid is available at [www.fao.uci.edu](http://www.fao.uci.edu).

## Reader/Grader Appointments

Reader/Grader appointments are generally assigned to first year non-resident graduate students who have not passed the English Proficiency Exam(s). The Mathematics Department will compensate students as follows:

### ENTERING 1<sup>ST</sup> YEAR

Tuition	Paid by Department
Fees	Paid by Department
Local Fees	Paid by Department
Stipend	Paid by Department

It is expected that the student will pass the English Proficiency Exam by the start of the 2<sup>nd</sup> year. Students who do not pass the exam and who are appointed as Readers will be compensated as follows:

## 2<sup>ND</sup> YEAR

Tuition	Paid by Department
Fees	Paid by Department
Local Fees	Paid by Student Currently \$256.50 per quarter, \$769.50 yearly
Stipend	None

- ◆ **All continuing graduate students who have been in the Mathematics Department MORE than 2 years must pass the TSE or equivalent test by the beginning of Spring Quarter 2009 or no departmental support will be offered.**
- ◆ **Any new graduate student, who started their career at UCI as of Fall 2008 or later, must pass the TSE or equivalent test by the end of their 2<sup>nd</sup> year or no departmental support will be offered.**

## Teaching Assistantships

A 50% Teaching Assistant position (TA) in the Department of Mathematics comprises a workload of no more than 220 service hours per quarter. UCI and the Department assume a full-time Graduate Student receiving a Teaching Assistantship does not have any other employment during the academic year. During academic sessions, graduate students may not be employed in any capacity by the University beyond 50% service time. All academic student employees are covered by a collective bargaining contract. For further information, see the Office of Graduate Studies website at [www.rgs.uci.edu](http://www.rgs.uci.edu)

## Discussion Sections

A 50% TA assignment consists of two discussion sections plus time in the Department's tutoring center. For each discussion section assigned, 2 hours per week will be spent in the classroom conducting discussion sections, 2-4 hours per week in the tutoring center, depending on the teaching assignment; 1 office hour per discussion per week to work with students. An average of 5 hours per week for preparation, grading exams and quizzes, etc.

A standard assignment will be two discussion sections per quarter (this is a 50% appointment). Generally each discussion section meets twice a week for one hour each. The course instructor determines how the discussions will be conducted, and it is the TA's responsibility to contact the instructor prior to the beginning of each quarter, and weekly thereafter.

The Teaching Assistants role will include conducting discussion sections that supplement faculty lectures, grading quizzes, examinations and proctoring exams. Do not cancel or reschedule your discussion section. Your Teaching Buddy must cover any absences.

## Tutoring Hours

Part of the duties of a teaching assistant will be 2-4 hours per week in the tutoring center. Teaching Assistants are required to schedule their tutoring hours with the Graduate Affairs Officer. You will be advised by email the date and time to sign up for tutoring hours. It is imperative for each TA to be in the tutoring center in the assigned place and at the assigned time. Students are free to drop in for help

at any time during that hour. The Teaching Buddy (see Teaching Buddy description below) covers absences. Please remember that the Department of Mathematics is offering this service to students. In order for the service to be effective, please be reliable and courteous. Tutoring starts the second week of classes and continues through finals week. TA's must login and logout of the timekeeping program in the tutoring center. Failure to login/logout will be viewed as an absence. An uncovered absence from the tutoring center is failure to fulfill part of the obligations of the Teaching Assistantship. Such absences may result in a reduction of the percentage appointment, resulting in a reduction in pay.

## **Office Hours**

You must have one office hour per week per discussion section. By the start of the second week of classes you will choose a time for your office hours. You will be advised by email the date and time to list your office hours and teaching buddy.

## **TA Assignments and Workload**

A TA must contact the appropriate instructor(s) as soon as you receive your assignment. The assigned workload is determined by the number of hours the University can reasonably expect a TA to satisfactorily complete. A TA with a 50% appointment will be assigned a workload of no more than 220 hours per quarter. (This applies proportionately to other percent appointments.) This can be used at the instructors' discretion for preparation, attending course lectures, grading, or discussion with the instructor. The TA Training is considered part of the workload for the term. Each TA should initiate correspondence with the instructor if they anticipate any workload-related issues.

Should you have questions or concerns regarding your workload it is your responsibility to contact the Graduate Affairs Officer or the Director of TA Training in a timely manner.

It is necessary that you establish and maintain frequent communication with the instructor(s) and with the Department. It is advised that you check your Department mailbox and email every day.

TA's are responsible for turning in the supplemental form within the first 2 weeks of every quarter. TA's are required to attend at least the first lecture of assigned instructor(s) in order to review the supplemental form and obtain the instructors signature. This document is a contract between the TA and the instructor.

## **Teaching Buddies**

Your Teaching Buddy is another TA who has agreed (in advance) to cover your assignment in case of an emergency. You are required to find your own Teaching Buddy, someone who either is or has been a TA in your course. You need a buddy for each discussion section assigned. This can be the same person, just make sure you are covered. This information must be given to the Graduate Affairs Officer by the start of the second week of classes. You will be advised by email of the date and time to list your teaching buddy.

If you are unable to fulfill any of your TA responsibilities you must arrange for your Teaching Buddy to substitute for you and notify the instructor and the Graduate Affairs Officer in the department. It is important that this be done as soon as you are aware of the need.

## **Academic Credit for Supervised University Teaching**

Being a TA entitles you to enroll in a course titled "University Teaching," Math 399, for one to four units of credit per quarter. Those teaching assistants who otherwise would not be enrolled in 12 units of graduate or upper-division credit and would not be recognized as full time for enrollment reporting

and budgetary purposes must enroll for 399 credit no later than the second week of instruction. Authorization codes are required for 399; contact the Graduate Affairs Officer.

## **Academic Criteria for Appointment**

The Graduate Studies Committee and the Graduate Admissions and Advising Committees decide who will receive Teaching Assistantships. The committee bases its selections on (1) academic progress (course work, examinations, etc.); (2) previous TA work, including student evaluations; and (3) Faculty recommendations.

The following University criteria must be met:

Enrollment in at least 12 units in the current quarter.

Combined campus-wide employment of no more than 50 percent time during the academic session.

Minimum GPA of 3.1 for Teaching Assistants & Teaching Associates

Satisfactory academic progress towards degree objective

A letter grade of C, S or above in all courses completed

No more than 2 Incomplete grades

English Proficiency Requirement for Teaching Assistants and Teaching Associates ONLY

All international students including those with Permanent Resident status wishing to serve as a Teaching Assistant must pass an oral English proficiency exam approved by UCI. TSE (Test of Spoken English) or the S.P.E.A.K. exam with a score of 50 or better, or the T.O.E.P. exam with a score of 5 or better.

The only exemptions to this exam are given to students who have:

- ◆ US citizenship
- ◆ Completed a 4 year high school degree in the US

Citizenship in a country where English is either the primary or dominant language as approved by UCI Graduate Council.

All continuing students appointed as Teaching Assistants must meet the following requirements during each of the three most recent quarters of enrollment:

## **Teaching Assistant Appointment Periods and Limitations**

Teaching Assistantships are for one quarter, two quarters, or an academic year. Graduate students, who have not advanced to candidacy for the doctorate, may be appointed as a Teaching Assistant or Teaching Associate for a maximum of 12 quarters including the full period of the current or proposed appointment. Following advancement to candidacy, doctoral students are permitted to be appointed an additional 6 quarters for a total maximum of 18 appointment quarters. The quarters are counted regardless of appointment percentage.

## **Fee-Offsets for Teaching Assistant Appointments**

The Office of Graduate Studies (on the behalf of the Mathematics Department) will pay 100% of the assessed fee for the Graduate Student Health Insurance Program (GSHIP) through fee remission programs.

A TA appointment of 25% or more for an entire quarter will receive a partial fee remission of 100% of the educational and registration fees. The remaining balance of the student fees to be paid by the

student for the 2008-2009 academic year will be \$256.50 per quarter or \$769.50 for the academic year.

## Evaluations

Students evaluate TAs each quarter online through EEE. An email reminder will be sent to students the 9<sup>th</sup> week of the quarter to complete the evaluation online. The evaluations for the last year of academic residence will be maintained in the student's graduate file for a period of 5 years after departure from UCI; they will be used for Letters of Recommendation.

## Payroll

Teaching Assistants are paid on the 1<sup>st</sup> day of the month following a service period. To receive your pay you have two options: 1) Departmental pickup or 2) Surepay (Direct Deposit). Select one of these options at the time your employment paperwork is signed or you can change your selection by [DEFT](#) (Disbursement Electronic Funds Transfer) you can review or change your enrollment in direct deposit; or, change your election to receive a paper check on-line at the DEFT link provided.

Please be aware that fall quarter Teaching Assistants will not receive their first paycheck until the first week of November, therefore other financial provisions should be made for this period.

## Scholarship

For a graduate student, only the grades A+, A, A-, B+, B, and S represent satisfactory scholarship. A graduate student is expected to make satisfactory progress toward an approved academic objective, as defined by the faculty of the program in accordance with policies of the Graduate Council, and to maintain a satisfactory grade point average for all work undertaken while enrolled in graduate study. Satisfactory progress is determined on the basis of both the recent academic record and overall performance. A graduate student normally is expected to complete satisfactorily at least eight units of academic credit applicable to the graduate program in each regular academic session and satisfy all requirements of the academic program according to an approved schedule.

*A grade point average below the B level (3.0) is not satisfactory, and a student whose grade point average is below that level is subject to academic disqualification. You must maintain a 3.1 GPA to be a Teaching Assistant.*

## Research Assistantship and External Grants

The University of California is the State's primary research institution. Much scholarly research and creative activity is supported by University funds or by grants and contracts from federal and state agencies, foundations, corporations, and individual sponsors. The Office of Graduate Studies also maintains a resource center containing the most current information about extramural funding sources for student and faculty research. Please refer to the Office of [Graduate Studies](#) homepage.

**Chancellor's Club Fellowship:** UCI Chancellor's Fellowships are one of UCI's most prestigious awards given to our most distinguished incoming graduate students. They are determined, and awarded to students, directly by the student's home academic unit. Chancellor's Fellowships are awarded to the most outstanding incoming graduate students in a unit admitted into a particular program of study leading to either a Ph.D. or M.F.A degree.

- ◆ A substantial stipend, student fees and, if applicable, nonresident tuition for the first year of study may be provided. The academic unit will guarantee TA/RA support for 3 additional years and a guarantee of on-campus housing.

- ◆ **Regent's Fellowship:** UCI Regents' Fellowships are determined, and awarded to students, directly by the student's home academic unit to outstanding graduate student applicants or continuing graduate students. Ordinarily, the Regent's Fellowship is restricted to outstanding Ph.D. students who are entering their 1<sup>st</sup> year of graduate study. Additionally, an academic department may choose to utilize this award to provide a dissertation quarter, or dissertation year stipend to academically deserving continuing students.
- ◆ The suggested minimum annualized stipend is \$13,500; payment of the student's fees and tuition (if applicable) should be provided for all Regent's and dissertation fellows. Awards may be given at any time during the academic year, or during the summer. In addition, incoming students are typically offered priority housing in one of UCI's on-campus housing facilities. (Nonresident tuition is not paid.)

**Distinguished University Fellowship:** Awarded to the most distinguished students leading to Ph.D. Payment of fees, and substantial stipend (nine months). Years 2-4 departmental payment of fees and support, usually in the form of a Teaching Assistantship.

**National Scholar Fellowship:** Awarded to the most distinguished student leading to Ph.D. Tuition, fees, and monthly stipend for Year (1). Full fees and monthly stipend Year (2).

**GAANN** (Graduate Assistance in Areas of National Need): This funding is provided by the United States Department of Education and may provide several Mathematics graduate students with need based fellowships. The GAANN fellowships are given to outstanding students who meet several GAANN requirements. The Graduate Committee will select GAANN fellows each year.

## **Continuing Student Fellowships**

**Summer Support:** For continuing Graduate Students, there are two Summer Sessions. Depending on your status you may be eligible for an Instructorship, Teaching Assistantship, and/or Reader position during the Summer Sessions.

**Summer Research:** For continuing Graduate Students, research experience must be aligned with thesis or dissertation. This is generally supported by the faculty advisor's research grant. Students will receive GSR stipend.

**Faculty Mentor Program (GPOP):** For second, third or fourth year Ph.D. students who have not advanced to candidacy.

One year of fellowship support, including a yearly stipend of \$14,700 (paid on a nine month scale October 1 to June 1) and fees, paid directly by the UCI Graduate Division.

Fellowships may also be supplemented by department funding, but may NOT be in the form of an employment appointment.

\$500 academic travel stipend.

Out-of-state tuition is NOT covered by this fellowship award.

**Fee Fellowship:** Based on available funding.

**President's Dissertation Year Fellowship:** This prestigious dissertation year program is intended for diversity students who are in their final year of graduate study and who are planning to pursue teaching or research appointments soon after the end of their dissertation fellowship year. It is expected that candidates will complete Ph.D. requirements during the award year. Provides substantial stipend (9 month tenure), student fees, and \$500.00 research/travel allowance. This is a campus wide competitive fellowship with nominations due generally in April for the following academic year.

*Dissertation Fellowship (one-quarter award)*: For students who have advanced to candidacy and are at critical and/or final stages of their dissertation. Current award amounts are estimated at a stipend of \$5,463.00 for the quarter and payment of the respective quarter's California resident fees.

## **External Fellowships**

A listing of popular fellowship opportunities is available from the Office of Graduate Studies website, <http://www.grad.uci.edu/finance/fellowships.htm#external> in addition to a number of grant/fellowship search tools.

## **Registration**

Deadlines are published each quarter in the Schedule of Classes. General registration at UCI consists of two separate steps: 1) Enrollment in classes via WebReg 2) Payment of fees. To avoid late charges, be sure you are registered by the end of the second week of classes.

<http://www.reg.uci.edu/registrar/soc/webreg.html>

Graduate students can enroll in classes via WebReg during the regular enrollment period. After the online electronic registration period ends (the end of 2<sup>nd</sup> week) students can enroll in additional classes by processing an add/drop/change card at the Registrars office. You must be enrolled in a minimum of 12 units by the enrollment deadline or a late enrollment service charge of \$50.00 will be assessed. Those students receiving fee or tuition credits either from a fellowship or academic appointment will see this reflected on their ZotBill.

If you believe you should be receiving fee credits and you do not see these adjustments, contact the Graduate Advisor Officer as soon as possible for follow up, so that the proper adjustments can be made before the fee payment deadline. For tuition and fee amounts and for further details, see the Schedule of Classes, available each quarter.

## **Graduate Student Associations**

The Associated Graduate Students (AGS) is the recognized graduate student government at UCI. They represent over 5,000 graduate and professional students. The majority of AGS' work is done by the graduate council, a body of representatives elected from each academic unit.

AGS activities include:

Keeping graduate students informed about issues affecting student life. Members sit on many committees that affect student life, such as the Housing Committees, the Graduate Council, and the Council on Student Experience. Involvement in the annual negotiation of the Graduate Student Health Insurance Plan (GSHIP) Sponsor an annual welcome week party and quarterly parties for graduate students Events in coordination with the Anthill Pub and Grille

### **AGS Funding:**

AGS is funded by a \$9/quarter fee per graduate student or \$4.50 fee for professional students. AGS' has a long-term goal to find ways to generate outside income to reduce or eliminate this fee.

Each year the AGS dedicates a portion of its budget to fund programs and events aimed at improving the social and academic environment of the UCI campus for graduate students.



## Housing

UCI is very proud of the various housing options, which are available to graduate students and those with families. Housing applications require a \$20.00 non-refundable processing fee.

Students applying for housing should apply as early as possible. [Online application](#). Telephone: (949) 824-7247 or email at [housing@uci.edu](mailto:housing@uci.edu) or visit the [UCI housing](#) website.

## Graduate Student Health Insurance Plan

All registered graduate students who pay full registration fees and attend U.C. Irvine, are eligible and are automatically enrolled in the MANDATORY Graduate Student Health Insurance Plan (GSHIP). It provides coverage for medical, dental, vision and worldwide travel benefits. Students are assessed a fee each quarter and coverage is provided year round. Insurance for eligible students enrolled in the spring quarter will extend through the summer until the beginning of the subsequent year. (Reminder: The University automatically pays 100% of the assessed fee for GSHIP for students who are appointed as TA's for 25% or more time for the respective quarter).

If you have other health insurance that offers coverage that is comparable or greater than GSHIP, you may apply for an exemption. Enrollment in GSHIP is automatic at the time fees are assessed; therefore the exemption process must be completed prior to the fee payment deadline. Please use [this link](#) or the exemption application and follow the detailed instructions:

Currently, dependent insurance is not available under UCI's GSHIP plan. However you can find contact information for UCI's GSHIP insurance broker on the GSHIP website: <http://www.gship.uci.edu> who has experience in assisting UCI students in finding affordable private insurance for their dependents.

Detailed information on the GSHIP plan can be found on the web at [www.gship.uci.edu](http://www.gship.uci.edu) or by contacting GSHIP Coordinator at 824-2388.

### GSHIP Healthcare Policy Information:

Contacts:

Appointments: (UCI Medical Clinics)	949-824-5304
UHCSR Mental Health	949-824-1835
Prescriptions	949-824-5923
Insurance Claims Information:	949-824-9415
Vision Appointments	949-824-3294
Dental	949-824-5307