INTRODUCTION

THE UNIVERSITY OF CALIFORNIA

President Janet Napolitano

Welcome to the University of California

Janet Napolitano was named the 20th president of the University of California on July 18, 2013, and took office on Sept. 30, 2013.

She leads a university system with 10 campuses, five medical centers, three affiliated national laboratories, and a statewide agriculture and natural resources program.

Napolitano is a distinguished public servant with a record of leading large, complex organizations at the federal and state levels.

She served as Secretary of Homeland Security from 2009-13, as Governor of Arizona from 2003-09, as Attorney General of Arizona from 1998-2003, and as U.S. Attorney for the District of Arizona from 1993-97. Before that, she practiced at the law firm of Lewis & Roca in Phoenix, where she became a partner in 1989. She began her career in 1983 as a clerk for Judge Mary M. Schroeder of the U.S. Court of Appeals for the Ninth Circuit.

As Governor of Arizona, Napolitano focused on education, from pre-kindergarten through public higher education. She was the first woman to chair the National Governors Association, and was named one of the nation's top five governors by Time magazine.

Napolitano earned a B.S. degree (summa cum laude in Political Science) in 1979 from Santa Clara University, where she was Phi Beta Kappa, a Truman Scholar and the university's first female valedictorian. She received her law degree in 1983 from the University of Virginia School of Law. Napolitano holds honorary degrees from several universities and colleges, including Emory University, Pomona College and Northeastern University. In 2010, she was awarded the prestigious Thomas Jefferson Foundation Medal (Law), the University of Virginia's highest external honor.

THE IRVINE CAMPUS

Chancellor Howard Gillman, Ph.D.

UCI is a thriving campus community situated in one of the most vibrant regions of the U.S. Students can enjoy a range of opportunities on campus that support both professional growth and student life. Love to surf or snowboard? We're five miles from the Newport Coast and 80 miles from the nearest ski lift – with easy access to almost anything you could want in between. UCI students also enjoy a wealth of local shopping and entertainment opportunities, from the world-renowned South Coast Plaza, to restaurants and major attractions, such as Disneyland, Knott's Berry Farm and Angel's Stadium. Plus Southern California features many museums, such as the Getty Center, Discovery Science
Center and Griffith Observatory, and is home to the Hollywood Bowl and the Disney Concert Hall.

Only 40 miles south of Los Angeles and 90 miles north of San Diego, UCI is minutes from the ocean and borders the majestic beach cities of Laguna and Newport Beach. The mountain resorts of Big Bear and

Mountain High are just a short drive away. With Orange County's mild climate, it's possible to play in the snow in the morning and catch some waves in the afternoon.

Ranked by Money magazine as one of the Top 25 cities to live in the United States, Irvine features more than 50,000 acres of open space open to hikers, joggers and bikers alike. Irvine is also repeatedly ranked as the nation's safest large city.

Founded in 1965, the University of California, Irvine is committed to rigorous academics and cutting-edge research. With more than100 graduate academic and professional degree programs, we are a thriving generator of innovation, creativity and discovery.

With 30,000 students, 1,100 faculty members and 9,700 staff, UCI is among the most dynamic 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 $4.8 billion.

Excellence in Academics & Research

Consistently ranked among the nation's best universities – public and private – UCI excels in a broad range of fields, garnering national recognition for many schools, departments and programs. Three UCI researchers won Nobel Prizes – two in chemistry and one in physics.

The university is noted for its excellent research and graduate programs, an extensive commitment to undergraduate education, and a growing number of professional schools and programs of academic importance and social significance. Recent enhancements include public health, pharmaceutical sciences and nursing science programs; an education school; as well as California's first public law school in four decades.

An analysis by *Times Higher Education*, released in April 2015, ranked UCI first in the U.S. and seventh in the world among the 100 best universities less than 50 years old. The "100 Under 50" list aims to show institutions poised to become future world leaders.

A Prime Resource for the Community

UCI's students, faculty and staff reach beyond the classrooms and laboratories to address social issues and improve the human condition. UC Irvine Medical Center, Orange County's only university hospital, recently opened a world-class facility, UC Irvine Douglas Hospital, housing the latest technologies and strengthening 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. Renowned individuals speaking on campus include Nobel Peace Prize winner the XIV Dalai Lama, Jordan's Queen Noor, British industrialist and Virgin Unite founder Sir Richard Branson, and United Nations messengers of peace Dame Jane Goodall and Charlize Theron.

Fueling Growth & Prosperity

The university has invested hundreds of millions of dollars in capital construction projects, with additional upgrades under way or in the planning stages. Extramural funding – money coming from outside sources, including federal and state agencies, industry contracts and private foundations in support of UCI research – regularly exceeds $300 million annually.

As the campus marks its 50th anniversary, UCI also celebrates the success of its $1 billion fundraising campaign to support the campus's continued excellence in research, teaching and public service in the decades ahead.

THE SCHOOL OF PHYSICAL SCIENCES

Welcome to the School of Physical Sciences at the University of California, Irvine. I am honored to serve as dean of this dynamic and diverse group of scientists, educators, students, and staff. As a professor of chemistry at UC Irvine since 1992 and, formerly, associate dean for the school, I have had many opportunities to observe the impressive work that has created the foundation of our school. I am committed to strengthening the three legs of academic excellence: teaching, research, and service.

Established in 1965, the School of Physical Sciences rose to the top echelon of academia in a remarkably short time. It offers top-rated educational and research opportunities for tomorrow's scientists, teachers, and technical professionals in the departments of Chemistry, Earth System Science, Mathematics, and Physics & Astronomy. Our world-renowned faculty members and research scientists teach and perform research with undergraduate and graduate students and postdoctoral fellows to explore the ever-advancing frontiers of knowledge.

This work has earned numerous awards and accolades. A particularly noteworthy accolade is that two of our founding faculty members, from the physics and chemistry departments, were each awarded the Nobel Prize in their respective fields in 1995. This made UC Irvine the first public university with faculty honored in two different fields in the same year. During the first decade of the 21st century, we have continued to build on our strengths with an aggressive growth campaign to add to our breadth and depth of excellence.

In a recent assessment of research-doctorate programs, conducted by the National Research Council, each of our four departments were ranked at or above the 15th percentile. This across-the-board excellence is rare, and we are particularly proud. From the first instant of the big bang to the future of our planet, from imaging individual atoms and molecules to modeling living cells and cancer tumors, and from synthesizing new molecules to the evolution of the universe - our scientists explore all time scales and all size ranges to learn nature's secrets and provide the foundation for the tools used by a modern technological society.

We are also leaders in science education with initiatives in modern instructional methods, interdisciplinary education, and our Cal Teach program, which prepares the K-12 science and math teachers our schools need for a 21st century economy.

I invite you to explore our website to discover the unique and exciting science and educational activities of our school. Please visit the site regularly to keep up with the many remarkable new stories that result from the work of our team. If you are local to UC Irvine, I especially encourage you to attend our quarterly Physical Sciences Breakfast Lecture Series, which invites the public to experience first-hand the work and global impact of our faculty. I am confident that you will see that this is an exceptional time to be a part of the School of Physical Sciences. We hope to see you soon.

Kenneth C. Janda
Professor and Dean, School of Physical Sciences

FACILITIES AND RESOURCES

UCI Libraries' facilities include 350,000 square feet in four locations: Jack Langson Library, Ayala Science Library, Grunigen Medical Library, and Libraries Gateway Study Center. These buildings contain over 3,300 public seats for study and research. The UCI Libraries' electronic and print collection includes approximately: 3.6 million volumes, 154,000 journals and serials, 114,000 government documents, 134,000 audio/visual materials, multimedia, maps, photographs, and other graphic materials. The Libraries Special Collections preserves 640 archival collections that include over 1 million original documents and photographs.

On an annual basis UCI Libraries' buildings receive over 1.7 million visits. The Libraries' website receives nearly 6.7 million virtual visits. Nearly 160,000 items are checked out, renewed, or used within the library. Librarians answer over 25,000 research and reference questions. Librarians provide research instruction to approximately 17,000 individuals. UCI Libraries' facilities are open 19 hours during a typical day and 111 hours during a typical week. Study centers are open 24 hours per day in the weeks before and during finals. The Libraries provide more than 570 public access computers.

For additional information visit the library at www.lib.uci.edu

The Center for Engaged Instruction (CEI) mission is to improve the quality of teaching and learning through pedagogical development for faculty, lecturers, postdoctoral fellows, and teaching assistants. To promote the use of evidence-based teaching techniques, including the use of instructional technology and to foster campuswide conversation about enhancing student learning through innovative teaching. http://cei.uci.edu/about-us/

The Office of Information Technology (OIT) is responsible for supporting the IT needs of UC Irvine faculty, students, and staff. Our mission is to provide information technology leadership, services, and innovative solutions to promote the research, education and community service goals of the University. http://www.oit.uci.edu/grad/ (949)824-2222 email: oit@uci.edu

Physical Sciences Computing Support is responsible for supporting staff, faculty and math students with their email accounts, intranet accounts and general computer help. Located in Rowland Hall 152 mailto:support@math.uci.edu

THE DEPARTMENT OF MATHEMATICS

The faculty of the **Department of Mathematics** at the **University of California, Irvine** are prominent scholars engaged in teaching, fundamental research in both pure and applied mathematics, and service to the local community with outreach efforts to foster success in **STEM** disciplines (science, technology, engineering, and mathematics). The Department includes 34 permanent faculty members together with 4 permanent adjunct instructors and is augmented by an equal number of postdoctoral researchers, lecturers, and visiting assistant professors, who play a vital role in teaching and research. Founded in 1965, the University of California, Irvine combines the strengths of a major research university with the perfect Southern California location, wonderful weather, and a diversified campus community and culture.

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. The Department population includes approximately **110 graduate students**, and over **615 undergraduate majors**, and numerous students completing minors, specializations, and concentrations.

The curriculum in mathematics includes opportunities for supervised individual study and research, and dissemination of knowledge through seminars and colloquia. The undergraduate program leads to a **Bachelor of Science degree in Mathematics** whereas the graduate program leads to a **Ph.D. degree in Mathematics** or a **Master of Science degree**. Most PhD graduate students are offered financial support through research associate and teaching assistant positions.

The faculty includes two members of the **National Academy of Sciences**, three fellows of the **American Academy of Arts and Sciences**, two **SIAM** fellows, eleven **AMS** Fellows, thirteen former **Sloan Research Fellows**, and numerous other distinguished awards and recognitions. The Department has an excellent scholarly production as witnessed by the numerous awards received by its faculty and the national **NRC ranking** of its research-doctorate program. The Department offers many valuable research opportunities such as **MCBU (Mathematical and Computational Biology for Undergraduates)**, an NSF-funded program for training and research for UCI undergraduate students in mathematics and biology; and a **RTG (Research Training Grant)**, an NSF-funded project which is a collaboration between **Caltech**, **UCI**, and **UCLA** to increase US residents (K-12, undergraduates, and graduates) who pursue careers in mathematical logic.

Community outreach includes many programs to motivate a new generation of future scientists, engineers, and mathematicians who will become leaders for California, the nation, and the world. Such outreach includes: **COSMOS** (California State Summer School for Math & Science) high school summer research program; **MathCounts** (regional and state math competition hosted by UCI for middle school students) UCI High School and Middle School Math Circle (math enrichment for mathematically talented students in the community) .
UCI Math CEO - Community Educational Outreach (to promote interest in mathematics in underserved youth, and cultivate both the desire and the potential to pursue college and STEM careers)

and various other school-visit and teaching opportunities that expose local and disadvantaged communities to the beauty and importance of Mathematics.

There is more information **About UCI** including **Campus Data & Reports**, **Rankings & Distinctions**, **Fact & Figures brochure (PDF)**, **UC Irvine History**, **Unit Fact Sheets**, **Maps**, and much more found via the **UCI portal**.

The **Department of Mathematics** is one of four departments in the **School of Physical Sciences**, and includes; **Chemistry**, **Earth System Science**, and **Physics and Astronomy**.

For the second straight year UC Irvine is one of the best public universities in the nation, according to U.S. News and World Report's prestigious annual rankings released Tuesday.

Irvine, part of the University of California system, ranked ninth among all public universities, sixth among California institutions and 39th overall.

UC Irvine ranked first among U.S. universities under 50 years old – and fifth worldwide – in a report released today by *Times Higher Education*. It's the second consecutive year that the campus has ranked in the top five. UC Irvine will celebrated its 50th anniversary in 2015 and is the youngest institution in the prestigious Association of American Universities.

THE MATHEMATICS GRADUATE PROGRAM

The Department of Mathematics is committed to excellence in teaching and research in a wide variety of mathematical disciplines. Graduate Students are engaged in a thorough program of study leading to professional excellence in mathematical research, or in an area of application.

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, and computational and applied mathematics.

In addition to formal courses and research, seminars are held frequently. Department faculty and outstanding mathematicians from throughout 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 website. 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 School of Biological Sciences offers a graduate program in Mathematical, Computational Systems Biology (MCSB) designed to meet to meet the interdisciplinary training challenges of modern biology and function in concert with selected department programs, including the Ph.D. in Mathematics. Detailed information is available online at HERE.

MATHEMATICS COMMITTEES & TA TRAINING

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 and Graduate Coordinator handle administrative operations. Contact information is available from the *Graduate Studies* link at the Math Department website.

Grad Admissions and Advisory Committee

This committee reviews the application files of all applicants for the mathematics graduate program. They review and advise on the admission selection to the graduate program, and on financial support for incoming Graduate Students.

TA Training Committee

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

Teaching Assistant Professional Development Program (TAPDP) & International TA Training (ITAT)

In coordination with The Center of Engaged Instruction and the "TAP DAP" program is a university-wide effort to train all new graduate teaching assistants in the basics of best practices for teaching and learning in their discipline. Learn more**.**

While it is impossible in such a short time to acquire all of the pedagogical skills necessary to teach well, TAPDP will help you to better understand your TA duties and responsibilities and to prepare you for them. During the training, you will also begin to develop a community with your cohort of other new TAs. Since experienced TAs also participate as facilitators for the training, you will have someone who has been in your shoes who can help you to navigate your way through being a graduate student in your

department as well as help you to TA effectively. Having this kind of support in graduate school is critical to success.

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. The Mathematics Department encourages all PhD students to obtain a MS degree en route to pursuing their PhD. To earn the Master of Science degree, the student must satisfy course and residency requirements, and achieve two passes at the M.S. level among three Exams in Real Analysis, Complex Analysis and Algebra prior to the start of the second year.

To satisfy the exam requirements, students may take the Core Assessment Exams (offered in the Spring of every year), the Comprehensive Exams (offered in the Spring of every year and described below), or the Qualifying Exams (offered before the start of the fall quarter) in Real Analysis, Complex Analysis and Algebra. Students may not attempt to take an exam in a particular subject area more than (3) times.

Some students may require additional background prior to entering Math 210 and 230. This will be determined by assessment prior to the start of the students' first year by the Vice Chair for Graduate Studies, upon consultation with the graduate studies committee. Such students will be directed into Math 205 and/or Math 206 during their first year. These students may pass one Comprehensive Exam in the areas of Algebra or Analysis in lieu of achieving a M.S. pass on one Qualifying Exam that must be obtained prior to the start of the students' second year. Comprehensive Exams in Analysis and Algebra will be offered once per year in the Spring quarter.

The total number of required courses for the M.S. degree is 12, completed with satisfactory performance (B or better). 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.

MS EXAM REQUIREMENT SUMMARIZED

To satisfy exam requirements, students must obtain at least one of the required (2) passes at the ***MS. level*** *prior to the start of their second year* in two of the three areas: Real Analysis, Complex Analysis, and Algebra. At most one pass can stem from a Comprehensive exam. This only applies to students who were asked to take Math 205 or Math 206 (see below).

- Core Assessment Exam (offered in the Spring of every year) or the
- Comprehensive Exam (offered in the Spring of every year) or the
- Qualifying Exam (offered before the start of each Fall quarter)

Students may not attempt to pass an exam in any particular area more than three times.

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.

MS 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 is submitted by the department and 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 (refer to the advancement deadlines). 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**.** ***http://www.grad.uci.edu/academics/filing deadlines/***

DOCTOR OF PHILOSOPHY IN MATHEMATICS

- Completion of all required coursework
- Completion of required written examinations
- 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. written examinations, advancement to candidacy oral examination, and dissertation.

Upon entering the program, students are expected to take Math 210, Math 220 and Math 230, which must be passed with a grade of B or better. Students must complete these sequences by the end of the second year. PhD students are required to register for a minimum of (1) Specialization Research Seminar at least up to advancement to PhD candidacy. Third year and beyond is at the discretion of the students Advisor.

By the start of the second year, students must achieve at least two passes at the M.S. level among three Exams in Real Analysis, Complex Analysis and Algebra. By the start of the third year, students must achieve two Ph.D. level passes among three Exams in Real Analysis, Complex Analysis and Algebra.

To satisfy the exam requirements, students may take the Core Assessment Exams (offered in the Spring of every year) or the Qualifying Exams (offered before the start of the fall quarter) in these areas. Students may not attempt to take an exam in a particular subject area more than (3) times. A student who passes a Qualifying examination prior to taking the corresponding course will be exempted from taking the course.

Some students may require additional background prior to entering Math 210 and 230. This will be determined by assessment prior to the start of the students' first year by the Vice Chair for Graduate Studies, upon consultation with the Graduate Studies Committee. Such students will be directed into Math 205 and/or Math 206, or equivalent, during their first year. These students may pass one Comprehensive Exam in the areas of Algebra or Analysis in lieu of achieving a M.S. pass on one Core Assessment or Qualifying Exam that must be obtained prior to the start of the students' second year. Comprehensive Exams in Analysis and Algebra will be offered once per year in the 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). **Only one of the courses Mathematics 210A-B-C, 220A-B-C, and 230A-B-C may count for 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 are required to 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. Completion of the Ph.D. degree must occur within 9 quarters of Advancement to Ph.D candidacy.

AREAS OF SPECIALIZATION AND THEIR CORRESPONDING ADVANCEMENT TO CANDIDACY COURSES

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 211ABC, Math 260ABC, Math 295ABC, Math 296

Applied and Computational Mathematics: Math 290ABC (core), Math 225ABC, Math 226ABC, Math 227AB,Math 291ABC, Math 295ABC

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

Logic: Math 280ABC (core), Math 281ABC, Math 282ABC, Math 285ABC

Probability: Math 210ABC, Math 211ABC, Math 270ABC, Math 271ABC, Math 272ABC, Math 274

PHD REQUIREMENTS SUMMARIZED

By the beginning of the 2nd year: Pass at the Master's level of proficiency, two exams in real analysis, complex analysis or algebra.

By end of the 2nd year: Declare a major specialization. Complete the course series 210A-B-C, 220A-B-C, 230A-B-C.

By the beginning of the 3rd year: Demonstrate Ph.D. level proficiency on qualifying exams in two of the following three areas: Real analysis, Complex analysis and Algebra. Select 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.

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. Completion of the Ph.D. degree must occur within (9) quarters of Advancement to Ph.D candidacy.

PHD EXAM REQUIREMENT SUMMARIZED

By the start of the second year, students must achieve at least **(2) M.S. level passes** among three exams in Real Analysis, Complex Analysis and Algebra.

By the start of the third year, students must achieve (**2) Ph.D. level passes** among three exams in Real Analysis, Complex Analysis and Algebra.

To satisfy these exam requirements, students may take the

- Core Assessment Exam (offered in the Spring of every year) or the
- Qualifying Exam (offered before the start of the fall quarter) or the
- Comprehensive Exam (only grants a MS pass, offered in the Spring every year): at most one in this area.

Students may not attempt to take an exam in a particular subject area more than (3) times.

A student who passes a Qualifying examination at the PhD level prior to taking the corresponding course will be exempted from taking the course.

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

DEPARTMENTAL/TUITION SUPPORT, PHD REQUIREMENTS SUMMARIZED

Departmental Support:

- Departmental support will not be offered to any PhD graduate student beginning their 2nd academic year of study that *has not received (2) MS passes.*
- Departmental support will not be offered to any PhD graduate student beginning their 3rd academic year of study that *has not passed at least (2) qualifying exams with a PhD pass.*
- Departmental support will not be offered to any PhD graduate student beginning their 4th academic year of study that has not *advanced to PhD candidacy*.
- Departmental support will not be offered to any graduate student *after the 6th year of study*.

TUITION SUPPORT:

- Tuition support will not be offered to students who *have not passed the Test of Spoken English by the end of their 2nd year. (Beginning Fall 2016).*

- Tuition support will not be offered to students who *have not advanced to candidacy by the beginning of their 4th academic year of study.*

ADDITIONAL EXAM INFORMATION FOR MS AND PHD STUDENTS

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 σ-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, 3rd 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, M" obius 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, Rouche'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 2nd 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 diagonability (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* (3rd 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 (2nd 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 presents 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**. PhD students in their first through 3rd year are required to attend a Specialization Research Seminar each quarter. Third year and beyond is at the discretion of the students Advisor.

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.

GRADUATE STUDENT RESIDENTS

Fee Remission Coverage	Fall 2016	Winter 2017	Spring 2017	Total AY 2016-2017
GSHIP	1,307.00	1,307.00	1,307.00	$3,921.00
Student Services	358.00	358.00	358.00	$1,074.00
Tuition	3,740.00	3,740.00	3,740.00	$11,220.00
Total Remission	$5,405.00	$5,405.00	$5,405.00	$16,215.00
Remaining Fees to Pay				
Local Fees	256.50	256.50	256.50	$769.50
Total Assessment	$5,661.50	$5,661.50	$5,661.50	$16,984.50

GRADUATE STUDENT NON-RESIDENTS

Fee Remission Coverage	Fall 2016	Winter 2017	Spring 2017	Total AY 2016-2017
GSHIP	1,307.00	1,307.00	1,307.00	$3,921.00
Student Services	358.00	358.00	358.00	$1,074.00
Tuition	3,740.00	3,740.00	3,740.00	$11,220.00
Total Remission	$5,405.00	$5,405.00	$5,405.00	$16,215.00
Remaining Fees to Pay				
Local Fees	256.50	256.50	256.50	769.50
Non-Resident Supplemental Tuition	5,034.00	5,034.00	5,034.00	15,102.00
Total Assessment	$10,695.50	$10,695.50	$$10,695.50	$32,086.50

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 $5,034 per quarter or $15,102 per year. Nonresident doctoral students who have advanced to candidacy are eligible for a 100% reduction in the non-resident supplemental tuition (NRST) for a maximum of three consecutive calendar years including time on leave of absence. The reduction in NRST begins with the first academic term following advancement to candidacy, and is based on the prevailing NRST rate for the year it is applied. Any nonresident student who continues to be registered, or who re-registers following the three-year maximum

allowance, will be charged the full NRST rate that is in effect at that time of enrollment. The student must be advanced to candidacy as of the first day of the quarter to qualify for the NRST reduction. A nonresident student is eligible for the reduced NRST for only one doctoral degree when he or she is enrolled at the University.
It is the expectation of the Mathematics Department that all non-resident students will obtain CA residency before their second year. The Mathematics Department will not pay US non-resident tuition after the first year of admission.

FULL-TIME STUDY

Full-time study is defined as enrollment in at least 12 units of graduate academic credit per quarter, including credit for supervised research or teaching.

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 by exception basis.** 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 Aldridge Hall, University of California, 92697-4975; telephone (949) 824-6124. http://www.reg.uci.edu/residency/classification.html

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 Office of General Counsel, 300 Lakeside Drive, 7th Floor, University of California, Oakland, California 94612-3565, telephone (510) 987-9777, 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.ofas.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 1st Year Students

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 2nd year. Students who do not pass the exam and who are appointed as Readers will be compensated as follows:

2ND Year Students

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 or no departmental support will be offered. (Starting Fall 2016)**
- **Any new graduate student must pass the TSE or equivalent test by the end of their 2nd year or no departmental support will be offered. (Starting Fall 2016)**

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

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 2-6 hours per week in the tutoring center for 2A/B, 5A/B assignments. 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

TA's with assignments 2D and beyond are required to hold office hours for each of their discussion sections. Sign-up instructions will be provided each quarter. 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 B, 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 each academic year will be $769.50 or $256.50 per quarter.

EVALUATIONS

Students evaluate TAs each quarter online through EEE. An email reminder will be sent to students the 9th 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 1st 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. We highly encourage direct deposit of your earnings to your bank.

PLEASE NOTE: 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.

SATISFACTORY PROGRESS

The grades A+, A, A- B+, B, and S represent satisfactory progress. 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. The criteria for determining satisfactory progress toward degree are outlined below:

- **GPA** - the student must maintain at least a 3.0 cumulative grade point average.
- **Normal Time to Degree –** the student must advance to candidacy and complete the degree within the limitations established by UCI's Graduate Council (March 2004). A student exceeding the maximal time to degree shall be deemed not to be making satisfactory progress toward their degree; moreover, they shall not be eligible to receive University resources (e.g., financial aid, TA-ships, housing, etc.). Normal Time to Degree for each graduate program is listed in the *General Catalogue* and on the Graduate Division website.
- **Grade Reports** - all I, W, or NR grades should be reviewed and appropriate action taken as needed.
- **P/NP** - no courses graded "Pass" are to be included as part of the advanced degree program, nor are they to be considered as satisfying academic criteria for University- administered fellowships and academic appointments/employment.
- **Enrollment Units** - students must be enrolled for at least 12 graduate or upper- division units of credit each quarter, including credit for supervised teaching and research, unless part-time status or an academic leave of absence has been approved in advance by the Graduate Dean. In cases of approved part-time status, enrollment in eight (8) or fewer units of credit toward the degree is expected each quarter.
- **Distribution of units** - the number of upper-division and graduate-level units of credit completed toward degree requirements each quarter should be at least eight and no more than 16 units, unless an exception has been approved. (most students exceed the 16 unit cap, if you need more units, send unit increase request to Donna, stating the additional course(s) and units needed).
- **Residency** - time in residence prior to advancement to candidacy for the Ph.D. or professional doctorate degree should be within acceptable limits (ordinarily, no more than four years).

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. UCI Graduate Division also maintains a resource center containing the most current information about extramural funding sources for student and faculty research. Please visit www.grad.uci.edu/funding/fellowships-awards for more information.

Chancellor's Club Fellowship: As one of the oldest and largest support groups at the University of California, Irvine, the Chancellor's Club was founded in 1972 and celebrates over 35 years of service to UC Irvine. Members include community leaders, alumni, and parents of students. Funds raised through

the Chancellor's Club are used to fund the prestigious Chancellor's Fund for Excellence Fellowships. These fellowships are awarded to the best graduate students at UCI who also show great promise as future leaders. Nominations are made by Deans for scholars in their schools.
It is expected that each recipient of the fellowship will be awarded a six-month stipend to total $10,000 for the period of January 2016 through June 2016. Receipt of the full amount of the award is contingent upon the student's continued satisfactory academic progress and success during this period. Chancellor's Club funding is in addition to existing support and may not be used as a substitute for other university support.

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 Mathematics Department applies for the GAANN fellowship when the U.S. Department of Education announces the competition. The GAANN fellowships are given to outstanding students who meet several GAANN requirements. The Vice Chair, MSO and Graduate Affairs Officer will select GAANN fellows each year based on their need in a report from FAFSA. The Department was not granted the GAANN fellowship for the A/Y 2015-2016. The Department has not received the announcement for the competition for the A/Y 2016-2017 to date.

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 (FMP): Nominees must be current UCI Ph.D. students who are in the pre-advancement stage of their program, and must not be at the dissertation stage during the tenure of the award. One year of fellowship support paid directly by the Graduate Division, including a yearly stipend of $21,600 (paid over a nine-month period, Oct. 1 to June 1) and full resident tuition and fees. This award includes a $500 academic travel stipend. This fellowship award does NOT cover non-resident tuition.

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.

EXTRAMURAL FELLOWSHIPS

A listing of Extramural Fellowship opportunities is available in the Graduate Division website, in addition to a number of Fellowships and Awards 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 2nd 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.

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 or visit the UCI housing website.

Graduate Student Health Insurance Plan (GSHIP)

UC SHIP Granted MEC Certification

A Mobile App is available for your mobile device, refer to the following link for instructions:

http://www.shs.uci.edu/Health_Insurance_Privacy/Insurance.aspx - GSHIP

University of California Student Health Insurance Plan (UC SHIP) is the University sponsored health insurance program for graduate students. **Eligible students are automatically enrolled in UC SHIP, and the premium for this insurance is assessed each term on the graduate student's registration fee statement**. You may request to waive out of this plan if you can demonstrate comparable and verifiable health coverage that meets the campus' minimum standards for insurance.

UC SHIP is a comprehensive health plan that provides medical, mental health care, pharmacy, vision and dental coverage. It features year-round, world-wide coverage using the Anthem Blue Cross PPO network. UC SHIP provides optimal coverage for services on campus and in the UC Irvine community and peace of mind for both parents and students.

UC SHIP members receive their primary care at the Student Health Center, where treatment will be administered or, if necessary, a referral issued. Please note that, although the UC SHIP plan is technically a PPO-type plan, students must first obtain a referral authorization from a Student Health Center primary care provider BEFORE seeking treatment from a non-SHC provider. If a referral authorization is not obtained in advance for any outside services other than emergency care or mental health care, then the claim will be denied.

GSHIP 2016-2017 Plan Benefits

The University of California Student Health Insurance Plan (UC SHIP) includes the following:

Summary of PPO Networks available for GSHIP (Graduates):

Medical Anthem Blue Cross Prudent Buyer
Vision Anthem Blue Cross "Blue View Vision"
Dental Delta Dental
Pharmacy Catamaran

The University of California Student Health Insurance Plan (UC SHIP) includes the following:

Medical Benefits Summary The medical benefits of the plan are provided through Anthem Blue Cross. Medical Benefits Brochure For more information please visit the Anthem Blue Cross web site at www.ucop.edu/ucship.

Customer Service: (866) 940-8306

New Anthem Live Chat option for GSHIP members

Behavioral Health Benefits

Mental health services are provided on campus or you may seek treatment from a network provider in the community.

Customer Service: (866) 940-8306

www.ucop.edu/ucship

Vision Benefits (pdf)

Your Vision benefits are provided through Anthem Blue Cross Blue View Vision. Vision care is not available on campus, however there are many vision care providers available in the community. To find a provider, please click on this link.

Customer Service: (866) 940-8306

www.ucop.edu/ucship

Dental Benefits (PDF**)**

Delta Dental is the dental insurance preferred provider network for UC SHIP students. The Student Health Center Dental Clinic and its dentists are in the Delta Dental PPO network and it is conveniently located on campus in SHC II across from the main SHC (building 6 on the campus map). UC SHIP members can also select from a wide choice of local dentists, listed on the Delta Dental website.

Customer Service: (800) 765-6003

www.ucop.edu/ucship

Pharmacy Benefits (PDF)

Welcome to OPTUMRx - your new Pharmacy Benefits Manager

- OPTUMRx/UC SHIP Welcome Flyer
- OPTUMRx/UC SHIP Member Website Flyer
- OPTUMRx/UC SHIP Mobile App Flyer
- Claim Form

Customer Service #: 1-844-265-1879

GSHIP UC Family Provider Directory (PDF)

After-Hours Nurse Advice Line (PDF)

(949) 824-5301

For more information please visit UCI Student Health Center at www.shs.uci.edu