GRADUATE STUDIES

WELCOME FROM THE DEAN

Graduate education is an experience in learning the process of discovery. Be it in the laboratory, the field, a museum or library, students will learn how to identify, investigate and analyze major problems of importance to society. As a natural laboratory for research of international significance, California's San Joaquin Valley is defined by the diversity of its people and the proximity of the Sierra Nevada mountains. These elements offer a critical venue for a broad palette of studies that span the gamut from the humanities and social sciences to the natural and engineering sciences.

The University of California, Merced is building both a world-class faculty and world-class partnerships with Yosemite and Sequoia/Kings Canyon National Parks and with Lawrence Livermore National Laboratory. These provide abundant opportunities for graduate students to inter- act with a broad range of internationally acclaimed scientists and policy makers while also providing access to some of the world's most powerful research instrumentation.

I hope you will explore UC Merced for your graduate education. As the 10th and newest campus of the University of California, we can offer our founding graduate students the matchless experience of being there at the beginning. You will have a profound impact on the campus spirit, culture and traditions that will become the hallmarks of the San Joaquin Valley's first UC campus.

Graduate education is about adventure and exploration; so too is the development of a new campus. The entrepreneurial spirit that drives the best graduate students is identical to that needed for the creation of a new campus. The faculty and the Graduate Division look forward to providing our students an educational experience that will be the stepping stone to a truly exceptional career.

Keith Alley, Dean

Graduate Division

SOLVING SOCIETY'S CHALLENGES

Society's most intractable problems are broad based and multifaceted. Viable solutions to these problems require a scope of multidisciplinary approaches that can benefit the people of California and the world beyond. UC Merced is committed to offering graduate students an opportunity to work on many of society's most pressing and important problems. The research interests of our faculty reach across the spectrum of modern science and scholarship. Research interests among UC Merced's initial faculty include:

- History of the Cold War and nuclear armament
- Immigration, health services, border controls, patterns of immigrant naturalization and implications for policy of migration patterns

- Ethnic diversity and political participation
- Psychology of bilingualism and second language learning
- Experimental and quasi-experimental design, meta-analytic methods, program evaluation and effects of psychotherapy
- U.S. economic history and political economy
- Digital cultural atlases for history and heritage preservation
- Space, mapping and power in pre-industrial Eurasia
- Spanish language literature of the Americas and Spain
- Transport of organic and inorganic contaminants in natural systems
- Structural and functional characteristics of biomaterials
- Design of environmental sensors for contaminant transport
- Computational biology, genomics and proteomics
- Biology of stem cells
- Philosophical issues in neuroscience and cognitive science
- Nanotechnology and solar energy

Given UC Merced's plans for substantial growth during its early years, this list will expand rapidly. The current list of UC Merced faculty can be found online at http://www.ucmerced.edu/faculty/facultylist.asp.

While the scope of graduate education at UC Merced will be national and international, the campus location also offers unique research avenues. From the cultural diversity of the San Joaquin Valley to the ecological diversity of the Sierra and the coastal mountains, the interior of California offers an abundance of unique living, learning and research opportunities. The interdependence of the Valley and the surrounding mountains provides a natural laboratory for creating environmental sustainability in the presence of an expanding and diverse population base.

UC Merced will offer an individually tailored graduate program with emphases in six areas. These include Quantitative and Systems Biology; Molecular Science and Engineering; Environmental Systems; Social and Cognitive Sciences; World Cultures; and Computer and Information Systems (in development.) Each of these is highly interdisciplinary in approach and designed to facilitate interactions between faculty and students from a broad scope of traditional academic disciplines. The graduate group structure for overseeing each of these emphases is composed of faculty from multiple schools. This is intended to offer graduate students the flexibility to address major societal problems using the tools of a wide variety of disciplines.

PREPARING FOR AN ADVANCED DEGREE

Admission to a graduate program at UC Merced requires a bachelor's degree, or its equivalent, that is comparable to a degree from the University of California both in the level of scholarly achievement and in the distribution of academic subject matter. Although applications for graduate study will be evaluated primarily on scholarly achievement, UC Merced will utilize the totality of a prospective student's qualifications, including research, work experience, recommendations and other creative accomplishments, to render a decision. To be eligible for admission to the UC Merced Graduate Division, you must have a minimum B average in your undergraduate course work. In addition to your undergraduate transcripts and an application, you will need to submit Graduate Record Examination (GRE) scores, letters of recommendation and, for certain programs, examples of your own written work that can be evaluated by the graduate admissions committee. Information regarding the GRE is available online at www.ets.org or at (609) 771-7670.

APPLYING FOR ADMISSION

An applicant can be considered for only one program area during a term. Applications to UC Merced can be accessed electronically at http://graduatedivision.ucmerced.edu/. Applications are accepted for the Fall semester only. Prospective students are encouraged to begin the admissions process as early as possible in the prior academic year. International applicants should consult the UC Merced Graduate Division website listed above for details regarding application and admission. Residents of the United States must have all application materials at UC Merced by January 15. In order for an application to be fully considered, a non-refundable application fee of $60 must be paid. You may pay using a credit card when applying online. Alternatively, checks should be made payable to UC Regents and mailed to the Graduate Division Office. Fee exemptions for UC approved programs are available.

INTERNATIONAL STUDENTS

Students with credentials from universities outside the United States should begin the application process well in advance of the deadline date. Official copies or certified copies of all transcripts in English and in the original language are required.

Applicants whose native language or language of instruction is not English must show evidence of having recently taken the Test of English as a Foreign Language (TOEFL) or the International English Language Testing Service (IELTS) examination. UC Merced requires a minimum score of 550 on the paper test or 213 on the computer-based TOEFL test or a score of at least 7 on the IELTS. Information on the TOEFL is available online at www.toefl.org and IELTS information at www.ielets.org. These requirements are waived for applicants who have received an advanced degree from a U.S. institution or from a country where English is the language of instruction.

International applicants must certify that they have sufficient funds to cover fees, tuition and living expenses for the first year of their study at UC Merced. A Foreign Applicant Questionnaire for the purpose of verifying the amount and source of funds available for graduate study will be forwarded upon acceptance into graduate study. Financial verification must be provided before visa forms can be issued.

ADMISSIONS AND REGISTRATION

A formal notice from the dean of the Graduate Division is the official proof of admission to graduate study at UC Merced. Successful applicants will be notified as soon as possible after the program faculty has made its recommendations to the dean of the Graduate Division. Accepted students will be asked to verify their intention to register by filling out and returning a Statement of Intent to Register. Return of this form will reserve your slot in the program. Should you choose not to accept the offer of admission, we ask that you also notify us by completing the Declination of Admission section so that we can offer the place to another applicant.

Individuals must register each semester to retain graduate student status. Registration provides the necessary access to courses, facilities and faculty. Students holding nonimmigrant visas must register for each semester covered by their visa.

PROGRAMS OF STUDY

UC Merced will offer the Master of Science (M.S.), Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees. New students will be assigned a faculty advisor and committee that will assist them in developing a curriculum to meet the requirements. Although considerable flexibility to meet individual needs exists, requirements usually include a core of required material that a student must master.

The M.S. and M.A. degrees are either Plan I or Plan II programs. Plan I requires a minimum of 20 semester units of upper division and graduate courses plus completion of a thesis. Plan II requires at least 24 semester units of upper division and graduate courses, followed by a comprehensive examination administered by the faculty.

Students pursuing M.S. or M.A. Plan I degrees will begin their thesis research at the end of the first year. Although they may continue to take additional graduate seminars or independent study, the majority of the second year will involve thesis research and writing. The thesis committee must approve the scope of the thesis and provide guidance during the process of developing the thesis. Approval of the thesis must be unanimous for the award of the master's degree.

The Ph.D. degree is designed to prepare students for creative activity and original research. A doctoral degree is awarded in recognition of a student's knowledge of a broad field of learning and for distinguished accomplishment in that field through an original contribution of significant knowledge. The dissertation must demonstrate a high level of critical ability, imagination and synthesis. In contrast to the master's degrees, there are no University unit requirements for the doctorate, although individual programs may set specific course requirements. However, students must complete at least four semesters of academic residence at UC Merced and successfully complete the course requirements before they are allowed to take the Qualifying Examination.

All students pursuing the Ph.D. degree must pass a Qualifying Examination before admission to candidacy. Students are expected to pass the Qualifying Examination before the beginning of their third year of graduate study unless they successfully petition the Graduate Council to take it at a specific later date. The intent of this examination is to ascertain the breadth of a student's comprehension of fundamental facts and principles that apply in their major field of study. It will also determine the student's ability to think critically about the theoretical and practical aspects of the field.

Students will be advanced to candidacy when they have done the following:

- Successfully completed the Qualifying Exam,
- Maintained a minimum grade point average of 3.0,
- Received incomplete grades in no more than two courses, and
- Fulfilled any language requirement associated with their program.

Once a student is advanced to candidacy it is imperative that he/she begin his/her dissertation studies promptly.

Founding graduate programs will be built around an interdisciplinary, graduate group model that melds faculty expertise and scholarly approaches that transcend normal disciplinary boundaries. Information about each of the areas of study can be found on the Graduate Division website at http://graduatedivision.ucmerced.edu. At opening we are planning to offer individual graduate instruction with an emphasis in the following areas of concentration:

QUANTITATIVE AND SYSTEMS BIOLOGY

The life sciences are undergoing a vast and fundamental metamorphosis from a discipline based on qualitative observation and description into a quantitative science based on comprehensive datasets and predictive models. The Quantitative and Systems Biology Graduate Group at UC Merced offers a multidisciplinary research and training program for doctoral students who want to be at the forefront of this revolution of the biological sciences. Research projects are available on topics ranging from intercellular signaling to computational molecular biology. Coursework will provide a background in the tools of modern biology, including computational biology, genomics and advanced instrumentation. The graduate group will offer opportunities for students interested in multidisciplinary projects at the interface among biology, computer science and bioengineering.

Participating faculty:

- KEITH ALLEY, Professor of Natural Sciences
- MIRIAM BARLOW, Assistant Professor of Natural Sciences
- MICHAEL E. COLVIN, Professor of Natural Sciences
- HENRY FORMAN, Professor of Natural Sciences
- JESSICA GREEN, Assistant Professor of Natural Sciences
- VALERIE LEPPERT, Assistant Professor of Engineering
- MONICA MEDINA, Assistant Professor of Natural Sciences
- MATHEW MEYER, Assistant Professor of Natural Sciences
- JENNIFER MANILAY, Assistant Professor of Natural Sciences
- DAVID OJCIUS, Professor of Natural Sciences
- RUDY ORTIZ, Assistant Professor of Natural Sciences

- MARIA PALLAVICINI, Professor of Natural Sciences
- CHRISTOPHER VINEY, Professor of Engineering

The Quantitative and Systems Biology program at the University of California, Merced offers individualized research- based courses of study leading to a Ph.D. or M.S. degree. All students in the Ph.D. program receive a stipend for the duration of study in the form of teaching and/or research assistantships as long as they are in residence and maintain adequate progress toward the degree.

We invite applicants with undergraduate degrees from any relevant discipline, including the life sciences, the physical sciences, engineering and mathematics. All applicants should take the GRE general test (subject tests are optional). Applicants from non-English speaking countries must achieve scores of at least 580 on the writ- ten or 230 on the computer version of the TOEFL (Test of English as a Foreign Language) and 45 on the TSE (Test of Spoken English). The admissions commit- tee will make its decisions based on a comprehensive review of undergraduate coursework and GPA, GRE scores, research experience and recommendations in reaching a decision on admission.

ENVIRONMENTAL SYSTEMS

The Environmental Systems Graduate Group offers individualized, research-based courses of study leading to the M.S. and Ph.D. It strives to equip students with the knowledge and skills to improve the scientific understanding of Earth as an integrated system of atmosphere, hydrosphere, lithosphere and biosphere. This under- standing is gained through the systematic study of biological, chemical and physical processes. Courses are designed to provide the scientific principles underlying the function and sustainability of natural and engineered ecosystems. The program places the principles of natural science and engineering in the context of pollution prevention, treatment and ecosystem restoration as well as integrating physical, chemical and biological cycles in environmental systems. Environmental Systems Graduate Group members are affiliated with the Schools of Natural Science and Engineering.

Programs of study emphasize laboratory, field and modeling studies of the natural and engineered environments from the perspective of biological, chemical and physical processes. In addition to research efforts at UC Merced, Environmental Systems faculty members are collaborating on interdisciplinary research topics with other University of California investigators as well as with scientists at Lawrence Livermore National Laboratory, Lawrence Berkeley

National Laboratory, the National Park Service at Yosemite and Sequoia/Kings Canyon, the U.S. Geological Survey and others. Updated information can be

found on the Graduate Division web- site at http://graduatedivision.ucmerced.edu/.

Initial faculty members participating in the Environmental Systems graduate emphasis include:

- ROGER BALES, Professor of Engineering
- MARTHA CONKLIN, Professor of Engineering
- JESSICA GREEN, Assistant Professor of Natural Sciences
- THOMAS HARMON, Associate Professor of Engineering
- VALERIE LEPPERT, Assistant Professor of Engineering
- PEGGY O'DAY, Associate Professor of Natural Sciences
- SAMUEL TRAINA, Professor of Natural Sciences
- ROLAND WINSTON, Professor of Engineering and Natural Sciences
- JEFF WRIGHT, Professor of Engineering

ATOMIC AND MOLECULAR SCIENCE AND ENGINEERING

Research in the Atomic and Molecular Science and Engineering Graduate Group is directed toward understanding how the optical, electrical, mechanical and transport properties of condensed phases and molecular assemblies arise from the fundamental properties of their constituent molecules and the manner in which those molecules interact. The basic scientific question is the following: how can a fundamental understanding of atomic- and molecular-level properties, obtained from experiment and/or theory, be used to predict the properties of materials on larger length scales? The ability to make this connection can be exploited to design new molecules and materials for applications in energy conversion, optics, information storage and transmittal, structural materials, biology and medicine.

Nanoscale materials – molecular assemblies or small crystals that have properties intermediate between individual molecules or atoms and bulk matter – are particularly interesting as bridges between the quantum mechanical and macroscopic worlds.

The Atomic and Molecular Science and Engineering Graduate Group program

at UC Merced offers individualized, research-based courses of study leading to the Ph.D. degree. While the M.S. degree is also offered, admission will usually be granted only to students who intend to pursue the Ph.D. Interdisciplinary projects are highly encouraged, as are interactions with faculty members or senior scientists outside UC Merced as collaborators, graduate committee members or co-advisors. We invite applications from a wide variety of undergraduate majors including chemistry; physics; biochemistry; molecular biology; materials science; computer science; and bio- medical, chemical, materials, mechanical, electrical and environmental engineering.

Initial faculty members participating in the Atomic and Molecular Science and Engineering graduate emphasis include:

- MICHAEL E. COLVIN, Professor of Natural Sciences
- ANNE MYERS KELLEY, Professor of Natural Sciences
- DAVID F. KELLEY, Professor of Natural Sciences
- VALERIE LEPPERT, Assistant Professor of Engineering
- MATTHEW MEYERS, Assistant Professor of Natural Sciences
- CHRISTOPHER VINEY, Professor of Engineering

SOCIAL AND COGNITIVE SCIENCES

Students interested in Social and Cognitive Sciences may apply to study for either a terminal master's degree or a doctoral degree. Initial areas represented by current faculty include economics and experimental psychology, behavioral research methodology, and cognitive science.

Initial faculty members participating in the Social and Cognitive

Sciences graduate emphasis include:

- KENJI HAKUTA, (Psychology) Professor of Social Sciences, Humanities and Arts
- SHAWN KANTOR, (Economics) Professor of Social Sciences, Humanities and Arts

- TEENIE MATLOCK, (Psychology and Cognitive Science) Assistant Professor of Social Sciences, Humanities and Arts

- BELINDA REYES, (Public Policy) Assistant Professor of Social Sciences, Humanities and Arts

- WILLIAM SHADISH, (Psychology) Professor of Social Sciences, Humanities and Arts

- CAROL TOMLINSON-KEASEY, (Psychology) Professor of Social

  Sciences, Humanities and Arts

- J. ARTHUR WOODWARD, (Psychology) Professor of Social Sciences, Humanities and Arts

- JEFFREY YOSHIMI, (Philosophy and Cognitive Science) Assistant Professor of Social Sciences, Humanities and Arts

WORLD CULTURES

A graduate group in World Cultures will offer individualized, research-based courses of study leading to M.A. and Ph.D. degrees. The program will explore the rich cultural and historical heritage of California, the San Joaquin Valley and the Sierra Nevada as a starting point for understanding world cultures in their historical, political and cultural contexts, and the effects of immigration and migration on society and culture. Students will gain a professional knowledge of the methods by which historians, artists, philosophers, literary scholars and other humanists and social scientists examine societies and cultures. The program will focus on three main areas: Public History and Cultural Preservation Studies, Literatures and Cultures of the Spanish-Speaking World and Literatures, and Cultures of the English-Speaking World. These are conceived as overlapping areas that would permit students to concentrate on one particular area of research while exploring wider implications of their research. Since proximity to the Sierra Nevada and the other splendid natural features of California has significantly influenced literature and the development of the arts in the State, students will also benefit from the intersections of interest between the World Cultures Institute and the Sierra Nevada Research Institute, particularly in the area of the cultural understanding of wilderness and the environment. The construction of the faculty for the World Cultures graduate group is currently ongoing; please consult the Graduate Division website at http://graduatedivision.ucmerced.edu/ for additional information on the group's faculty and their research interests.

Initial faculty members participating in the World Cultures graduate emphasis include:

- **VIRGINIA M. ADAN-LIFANTE**, Consulting Faculty, Spanish
- **JAN E. COGGANS**, Assistant Professor of Literature
- **GREGG HERKEN**, Professor of History
- **SEAN MALLOY**, Assistant Professor of History
- **MANUEL MARTIN-RODRIGUEZ**, Professor of Literature
- **RUTH MOSTERN**, Assistant Professor of History
- **DUNYA RAMICOVA**, Professor of Arts
- **CRISTIAN H. RICCI**, Assistant Professor of Literature
- **JEFFREY YOSHIMI**, Assistant Professor of Philosophy

COMPUTER AND INFORMATION SYSTEMS

A Graduate Group in Computer and Information Systems is being formed to offer individualized, research-based courses of study leading to M.S. and Ph.D. degrees. The program will serve as a focal point for research by students who desire to make contributions to fields such as digital information processing and informatics, net- working and distributed computation, database design and development, high-performance simulation and modeling, parallel and distributed systems, algorithm design and testing, image processing and analysis, and software engineering. The group will focus on research on the theory and foundations of computing, system soft- ware, and computer system and networks design, with applications across the full spectrum of science and engineering. Computer and information systems are highly cross-disciplinary and will involve faculty within all three initial Schools at UC Merced. The faculty who are being recruited to UC Merced will determine initial curricular emphases within this broad framework for Computer and Information Systems, with additional disciplinary areas to be developed as faculty are added.

Graduate education in Computer and Information Systems will be characterized by multi-investigator, multi-disciplinary effort. It is also expected that there will be research collaborations between students and faculty members affiliated with the graduate group, and scientists at the Lawrence Livermore National Laboratory, particularly with respect to the use of specialized

computational equipment. Since the construction of the Computer and Information Systems Graduate Group is currently ongoing, please consult the graduate division website at http://graduatedivision.ucmerced.edu/ for additional information on the group's faculty and their research interests.

GRADUATE STUDENT RESEARCH POSITIONS AND TEACHING ASSISTANTSHIPS

For information on graduate student research positions or teaching assistantships, please see the Graduate Student Financial Support section of this catalog.

IMPORTANT CONTACT INFORMATION **Graduate Division**

http://graduatedivision.ucmerced.edu/ graddiv@ucmerced.edu

Director of Admissions: Callale Cierra
ccierra@ucmerced.edu

(209) 724-2998

5200 N. Lake Road

Merced, CA 95340

Financial Aid

finaid@ucmerced.edu

Financial Aid Advisor: Heather Nardello

(209) 724-4384

5200 N. Lake Road

Merced, Ca 95340

Free Application for Federal Student Aid (FAFSA):

www.fafsa.ed.gov

Graduate Record Exam (GRE):

www.ets.org

Test of English as a Foreign Language (TOEFL):

www.toefl.org

International English Language Testing Service (IELTS):

www.ielets.org

GOVERNANCE OF GRADUATE EDUCATION

Graduate study is administered by the Graduate Council, a committee of the Academic Senate, and by the dean of the Graduate Division. The Coordinating Committee on Graduate Affairs is a systemwide body that assures coordination between the campuses and develops general policies that govern graduate education through- out the University of California.