

# Academic Planning for UC Merced

## A Current Overview

### Introduction

The University of California, Merced is the tenth campus of the University of California. UC Merced will increase the University's enrollment capacity and will provide the benefits of a research university to Californians in the San Joaquin Valley. In 1995, the UC Board of Regents selected a site in the San Joaquin Valley that is located approximately six miles northeast of the City of Merced. The rapidly growing San Joaquin Valley has the state's largest population concentration without ready proximity to a UC campus. Between now and 2020 the Valley's population will grow by over 60%, while the population of California as a whole will grow by half that amount or approximately 30%.

The Regents have authorized planning and development of the tenth campus in Merced to enable the University to continue to provide undergraduate access at levels contemplated in California's master plan for higher education. The Merced campus is critical to the University's longer-term ability to accommodate the projected enrollment growth of 54,000 students by 2010-11.

Following the lead of UC campuses such as UC Santa Cruz, UC Irvine and UC San Diego, founded some 35 years ago and now matured into top-ranked universities, UC Merced plans to open in 2004-05 with 1004 FTE students. It plans to grow rapidly, doubling its student population in the second year and adding about 800 students per year thereafter. By 2010-11, the campus should reach 6,016 FTE students, having absorbed approximately 10% of the Tidal Wave II impact estimated for the UC system.

### University of California, Merced Projected FTE Enrollments

	<u>2004-05</u>	<u>05-06</u>	<u>06-07</u>	<u>07-08</u>	<u>08-09</u>	<u>09-10</u>	<u>10-11</u>
Undergraduate Students	900	1801	2519	3238	3957	4675	5394
Graduate Students	<u>104</u>	<u>208</u>	<u>291</u>	<u>374</u>	<u>457</u>	<u>539</u>	<u>622</u>
Total FTE Students	1004	2009	2810	3612	4414	5214	6016

### Academic Programs

UC Merced will fulfill the University of California's tri-partite mission of teaching, research and public service. While the campus academic programs will place a special emphasis on science and engineering, notably natural resources science, engineering, computer science, and information technologies, the curriculum will encompass the range of core letters and sciences fields found at all UC general campuses, plus selected professional programs. The campus will open with three academic divisions: natural sciences, engineering, and social sciences/humanities/arts. In addition, initial research emphases in natural resource science and policy will be carried out through establishment of the Sierra Nevada Research Institute. In addition, research in the humanities, humanistic social sciences, arts, and sciences will be

sponsored through the World Cultures Institute. Finally, a public policy center will contribute to these institutes and particularly support social science development.

**Interdisciplinary Orientation** UC Merced is being planned as a university that emphasizes links among the disciplines and minimizes the barriers between academic areas. Each division is expected to develop a small number of areas in depth at the outset rather than scatter the small number of founding faculty across the disciplines. The academic programs will be developed through creative interaction between the academic divisions and the research institutes outlined above. This will allow development of early distinction. As the campus grows, additional disciplines will evolve.

Planned research initiatives include collaborative relationships with other UC campuses and federal, state and local agencies to support unique research opportunities that reflect the environment and culture of the region in which the campus is located. The first two research efforts will be key to attracting the founding faculty who will be able to work in a highly energized, cross-disciplinary research environment. These research programs will also contribute to development of graduate education and provide subject matter content for undergraduate majors.

- The Sierra Nevada Research Institute (SNRI) is being developed to carry out research on critical issues affecting the Sierra Nevada Range and San Joaquin Valley regions of California, including population growth and development, water and watersheds, and air quality. Faculty from a range of biological sciences, resources engineering, computer science and informatics, and policy-oriented social scientists will collaborate in the Institute.
- The World Cultures Institute will foster interdisciplinary research that draws an advantage from its location in a region of rich intersection of peoples and their cultures from throughout the world. Faculty from fields such as languages, literature, philosophy and religion, history, anthropology, visual arts, music, drama, art history, and selected sciences will collaborate in the study of both the constituent cultures and culture-creation, as people from diverse backgrounds come together.

Both Institutes will be active collaborators with the three academic Divisions in developing academic degree programs for UC Merced.

UC Merced has established two collaborative agreements with external federal agencies. The first is with Yosemite and Sequoia/Kings Canyon National Parks and will enable the use of the natural laboratories of the parks for field-based scientific and cultural resources study. The academic programs developed through collaboration between the Sierra Nevada Research Institute and the Divisions will be enhanced through these field studies. In addition, cultural resources in the parks will contribute to programs developed through the World Cultures Institute.

The second agreement is with Lawrence Livermore National Laboratory and will strengthen interactions between natural sciences and engineering on campus, given Livermore's history of

knitting science and engineering teams to work on areas such as environmental sciences, advanced computing, and biotechnology.

The areas selected for early curricular emphasis will place a premium on hands-on experiences for students. Laboratory-based instruction will be complemented and enriched by field-based study. In keeping with UC's emphasis on providing for undergraduate participation in UC's research mission, UC Merced will extend to its students a range of research opportunities as part of their undergraduate curriculum.

The new instructional and information technologies will enhance the ability of UC Merced students to be active learners and to engage in a range of interactions with the faculty. By opening in a technology-rich era, UC Merced will take advantage of what is being learned about effective uses of instructional technologies and build on those insights through pedagogical innovation. A technology-rich environment on and off campus will enable achievement of UC Merced's goal of connecting its students, faculty, staff, and community with the information resources of the world.

**Engineering.** Engineering, computer science, information technology, and natural science are fields that will have a key role to play in almost any comprehensive disciplinary activity at UC Merced. For example, many of the issues to be addressed at the Sierra Nevada Research Institute, such as resource sciences focusing on quality of air, water and soil, will require the expertise of several engineering disciplines. These areas also have roles to play in development of general education at UC Merced. Non-engineering and science students should be prepared for a world where most major social and political decisions will require substantial technical understanding and a sound basis for understanding quantitative analysis. Engineering and science students need to integrate humanities and social sciences into their core education. In addition, all students need broad education that prepares them for effective oral and written communications. UC Merced must be poised to be a leader in integrating engineering and science into general education and in preparing its students to be part of an interdisciplinary world.

In order to establish a solid basis on which to build a full engineering, computer science and information sciences program, UC Merced has identified a set of fields that represent exciting trends and thus hold great promise for a new campus. Initial programmatic areas in engineering were identified based on factors such as importance to California's future, potential for collaboration with Lawrence Livermore National Laboratory, and feasibility of rapid start-up. The planned areas are:

- computing and communications, drawing upon the fields of electrical and computer engineering and computer science;
- energy conversion and resources engineering, drawing upon the fields of environmental engineering, environmental sciences, civil engineering, chemical engineering, and mechanical engineering;
- biotechnologies and bioengineering, drawing upon the fields of bioengineering, environmental engineering, and bioinformatics; and

- microelectronics, nanotechnologies and microscale systems, which could benefit from a partnership with Lawrence Livermore National Laboratory.

Undergraduate majors planned for the first year include:

- Computer Science and Engineering
- Environmental Engineering

**Natural Sciences.** The Division of Natural Sciences will develop the core areas that need to be in place for a strong science and technology campus: the biological sciences, chemistry, earth sciences, mathematics and physics. As in other fields to be developed on campus, it is anticipated that divisional barriers will be kept low to allow collaboration across disciplinary lines in academic programming as well as research.

Work has already begun to establish the foundation for the Division of Natural Sciences. An innovative core curriculum will prepare lower division students for any major in either Natural Sciences or Engineering. While receiving an enriched grounding in biological sciences, physical sciences and computation, students will be able to explore multiple areas before making a final choice of major.

Early areas of potential research excellence that will draw on both natural sciences and engineering include biotechnology and structural biology, environmental sciences, and material sciences. UC Merced's agreement with Lawrence Livermore National Laboratory will strengthen UC Merced's programs in environmental sciences, advanced computing, and biotechnology. A combination of nanotechnology emphasis in engineering and the cooperative agreement with Livermore suggests exciting prospects for collaborative research and academic programming on nanoscale issues in physical and inorganic chemistry, biochemistry, and X-ray laser physics.

Undergraduate majors planned for the first year include:

- Biological Sciences
- Earth Systems Sciences

These will provide essential support for environmental sciences and bioengineering majors at UC Merced. In addition, because undergraduate biological science majors are among the most impacted in UC, a biological science major at UC Merced will help UC meet student demand.

**Social Sciences, Humanities, and the Arts.** The Division of Social Sciences, Humanities and Arts will develop programs around faculty who are:

- engaged in quantitative or qualitative analysis;
- engaged in the study of the past or of the contemporary world and its future course;

- engaged in theoretical or empirical study;
- engaged in work oriented toward practical application or with no such immediate end in mind;
- engaged in work best fostered in an interdisciplinary setting or in conventional disciplinary structures.

The Division will be organized in innovative ways that encourage new forms of collaboration across disciplinary lines. These approaches will be reflected in undergraduate programs that contain an excellent grounding in basic disciplinary practice while introducing students to new directions; and graduate programs, which derive their strength from new faculty collaboration across disciplinary lines.

The Division will also develop programs that are designed to relieve demand pressure at other UC campuses. Currently, fields such as psychology, economics, and digital arts are in high demand throughout UC.

Undergraduate programs contemplated for the Division of Social Sciences/Humanities/Arts in its first year include:

- World Cultures and History
- Social and Behavioral Sciences

A unique undergraduate program in world cultures will incorporate a range of humanities, humanistic social sciences and arts disciplines. Furthermore, an undergraduate major that attracts students interested in the study of psychology and business/economics will contribute to meeting the high student demand for these fields across UC.

**Graduate Programs.** UC Merced will offer a selected number of graduate and professional programs that meet state and national needs for advanced training. Graduate programs will be offered through graduate groups, flexible structures that allow faculty from a variety of disciplines to participate, and will initially be quite broad to reflect the interdisciplinary foci.

At opening, UC Merced plans to offer masters and doctoral degrees in the following areas:

- Computer and Information Systems
- Environmental Systems
- Systems Biology
- World Cultures
- Social and Behavioral Sciences

**Professional Education**. A School of Management will be the first professional school to be developed during the initial years at UC Merced. The School will offer undergraduate and graduate programs including the MBA, Executive MBA and Ph.D.

**UC Merced Centers**. To facilitate educational opportunities throughout the San Joaquin Valley, the campus will develop a series of centers strategically located to provide a range of educational services to local areas as well as provide opportunities for students to take some courses in their first year within their community. UC Merced Centers are currently in operation in Merced, Fresno, and Bakersfield and a center is planned for Modesto. In addition, these centers will serve as a coordination point for transfer students and will create stronger links and collaboration with community colleges.

**General Education**. UC Merced should support the intellectual growth of students by giving them a chance to work in small groups of fellow students and faculty. The following principles embody the core philosophy of maintaining small interactive groups within a large organization:

- Students and faculty should engage in general education in groups which support student success by assuring strong intellectual interactions within the group;
- Faculty should guide general education through frequent participation in curriculum development and small student/faculty groups;
- Students should have both choice and coherence in their education program;
- The faculty structure should stimulate curricular and pedagogical innovation;
- General education should be structured so that it can readily evolve as the faculty and student body grow and as the requirements of an educated citizenry change over time; and
- UC Merced should invite collaboration with other public higher education institutions in the region in order to create common approaches to excellence in student preparation and success.

To achieve these goals, UC Merced will create a college system that will play a key role in the student's intellectual development over the course of their four years of academic work toward a UC Merced degree. Designed to be independent of student residence, the highest priority of the College will be to assist students to be academically successful. To that end, the College will coordinate delivery of UC Merced's general education program in concert with the University's three academic divisions. In addition, the College will be responsible for lower division academic advising, academic programs for UC Merced students who start their education at one of UC Merced Centers, undergraduate research, freshman seminars, capstone experiences, academic internships, and effective integration of transfer students into the College.

## **Student Life**

Student services will be planned and organized in ways that recognize that student expectations will differ from those of their predecessors who attended existing UC campuses. Student services will reach out to students during their K-12 years, recruit and admit them, provide for essential support such as financial aid and housing, acclimate them and provide a rich co-curricular life once admitted, help them persist in working toward their educational goals, and enable them to graduate with the degrees they seek. The University of California, Merced has

set a goal of becoming the 21<sup>st</sup> century's premiere student-centered research University. Essential service functions must complement outstanding academic offerings in order to transform a collection of buildings into a vital place of learning. The following hallmarks will characterize student life at UC Merced:

- *Integration, Flexibility and Community* as guiding principles in planning for the new campus and as enduring values for all subsequent endeavors;
- *Education on a Human Scale* through mentor advisors and other entities—both physical and organizational—that support academic success by providing each student a strong sense of intimate, individual place connected to the larger campus whole;
- *Diversity* as a core feature of University life;
- *Learning Centers* that provide broadly dispersed campus satellites to serve students, prospective students, families, alumni and community members throughout the Central Valley;
- *Reliance on Technology*, integrating advanced capabilities into all aspects of University operations and services; and
- *A Complement of Enrollment Management and Student Life* functions linked through a redefinition of advising.

This last feature should provide the foundation for building a collaborative relationship between student services and academic affairs. Unconstrained by institutional precedent, campus academic leaders will bridge the division that traditionally exists between these two areas. The traditional functions such as admissions, registrar, housing, counseling, and student life will be integrated in new ways and located in the library as the educational center of the campus.

## **Library Planning**

### **Both a Building and a Service**

The university research library of the 21st century will be a physical place on campus intertwined with a digital presence on student and faculty computers. As one of the first three academic buildings constructed on the new UC Merced campus, the Leo and Dottie Kolligian Library will open as the University's academic "front door." The Library will be both a building and a service. The building will house the enterprise that acquires, organizes, and delivers information resources in support of student and faculty research and study. Library resources and services will be available in the building as well as from computers connected to the campus network and to the Internet. Some Library resources will be in physical packages that sit on shelves: books, paper archives, sound recordings, maps, photographs, and much more. Others will be in digital packages, such as online journal articles, data sets, and geographic information systems. With the integration of the physical and the digital to create a 21st century library for UC Merced, the Kolligian Library will also be a vibrant place for learning and collaboration. While there, students and faculty will receive the highest quality support for their information resource needs, and they will become prepared to make the fullest use of the Library's digital content and services from their personal computers when they are in their dorms, labs, offices, and homes.

The Library will be located at the crossroads of academic and student life in between the residence halls and the classrooms and labs. The entrance to the Library will lead to a welcoming campus reading room that will be an active and open focal point for social, educational, and research activities. It will be as easy to find a fellow student as to find an information resource. There will be easy access to student services such as the registrar, counseling, and student organizations. A coffee house will encourage a relaxed, interactive environment. The campus reading room will open to the wide array of services and content of the Library:

- The information commons will combine substantial online tools with reference and instructional staff support.
- Media development labs will provide the resources to prepare sophisticated reports and classroom presentations.
- Computer labs will provide specialized tools for the use of digital content.
- The book stacks and collections of special materials will be easily accessible.
- Group seating and conference rooms with networked collaboration and display tools will facilitate collaborative ventures.
- Quiet workspaces will meet the needs of an individual researcher or a student who simply wants a place to study without interruption.
- Computer network connections and wireless access will be available throughout the building.

### **Information Resources**

There is a significant totemic aspect to the book on the shelf as the indicator of the scale and quality of a library. Nonetheless, a research library is a service organization and not a warehouse of objects. The meaningful measure of a great library is how well it meets the information needs of its clientele. In the world of online resources and rapid and effective delivery services, access to information resources becomes far more important than ownership of the related artifacts.

The Library will open its doors with complete access for all UC Merced faculty and students to the combined collections of all of the University of California Libraries. In July 2001, the combined collections totaled 31,923,969 bound volumes and multiple millions of items in other formats such as maps, sound recordings, microfilm, etc. The online, easy to use Request service eliminates paperwork and ensures rapid delivery of requested items from the campuses to the individual.

Digital resources will be primarily provided via the California Digital Library, a co-library of the campuses of the University of California. A collaborative effort of the ten campuses, the CDL is organizationally housed at the University of California Office of the President, which is responsible for the design, creation, and implementation of systems that support the shared collections of the University of California. CDL provides online access to most current scholarly journal publication and to a rapidly increasing array of retrospective resources and archival material.

Collection development has begun with the acquisition of numerous private collections, including several monograph collections that will be very supportive of research in the UC Merced World Cultures Institute. One significant acquisition has been the Addiss collection of rare books and 78 rpm recordings of world music (primarily Asian).

## **Partnerships and Digital Special Collections**

UC Merced has a formal memorandum of understanding with the National Park Service to use Yosemite, Sequoia, and Kings Canyon National Parks as “living laboratories” that are integral to research about the Sierra Nevada and the San Joaquin Valley. As part of this partnership, senior staff of the Library and the Park libraries and museums have begun planning to create digital access to the rich archival resources of the Parks. The Library has completed project planning for a collaboration with the Ruth and Sherman Lee Institute for Japanese Art at the Clark Center to digitize the complete holdings of the Lee Institute and to provide access to the online images via the University of California’s Online Archive of California. Digitization of unique material and provision of online access will be a vital strategy for the development of special collections in support of research needs.