
Research Centers

Research centers, institutes, and laboratories serve the university's mission in research. They are overseen by eight of the colleges, the Office of the Vice President for Research and Economic Affairs, and the ASU East provost.

Center for Research on Education in Science, Mathematics, Engineering, and Technology

The Center for Research on Education in Science, Mathematics, Engineering, and Technology (CRESMET)—an alliance of the ASU College of Education, the Ira A. Fulton School of Engineering, and the College of Liberal Arts and Sciences—was initiated in 1999, growing out of what was previously the Center for Innovation in Engineering Education. The mission of the center is to bring together individuals, programs, and organizations interested in improving K–20 science, mathematics, engineering, and technology education to research, develop, and assess educational theories, curricula, courses, and administrative policies that impact science, mathematics, engineering, and technology education. The center also encourages and supports wide-scale sharing and implementation of effective approaches to producing a more scientifically and technologically literate populace and more capable science, mathematics, engineering, and technology majors.

Research. CRESMET pursues research and development that demonstrates coherent, consistent, and conceptually powerful mathematics, science, engineering, and technology education from kindergarten through college (K–20).

Partnering. CRESMET supports collaborations across the traditional boundaries of university, community, business, and local education agencies.

Sharing. CRESMET establishes communication avenues for intellectual and material products proven effective in supporting powerful learning in science, mathematics, engineering, and technology fields.

For more information, visit CRESMET in ECG 303, call 480/965-5350, or access the CRESMET Web site at www.eas.asu.edu/~CRESMET.

Institute for Studies in the Arts

The Institute for Studies in the Arts (ISA) is an interdisciplinary research center within the Katherine K. Herberger College of Fine Arts (HCFA) at ASU. Its infrastructure has been developed especially to facilitate interdisciplinary digital arts and includes a collaborative relationship with the Ira A. Fulton School of Engineering (FSE). The ISA supports creation, research, development, presentation, and education at the intersection of the arts and technology.

The institute offers courses and training programs in interdisciplinary digital media and performance and in signal processing and programming for the arts. Courses are designed for graduate students exploring both the theory and practice of interdisciplinary collaboration between the

arts and technology. Faculty include ISA artists, visiting artists, a faculty appointee jointly serving FSE and HCFA, and affiliated FSE faculty.

ISA facilities include Digital Arts Ranch—a black-box theater with a matrix of video, audio, and movement sensors; controllable projection screens; surround sound capabilities; shops for design and fabrication; a CAD unit; and the Intelligent Stage—a research environment and performance space dedicated to the expansion of studies in interactive performance technologies, including 3-D motion capturing and 2-D sensing technologies; a state-of-the-art Audio Lab and Digital Imaging Lab; the Technology Development Studio—staffed by an electronics engineer and research assistant from the Department of Electrical Engineering and dedicated to the development and creation of software and hardware tools for creative applications—and the Computing Commons Gallery, a highly adaptable exhibition space for works with a focus on art and technology.

For more information, call 480/965-9438, or access the Web sites at www.isa.asu.edu or ame.asu.edu.

ASU EAST

Sustainable Technologies, Agribusiness, and Resources Center

The focus of the Sustainable Technologies, Agribusiness, and Resources (STAR) Center is to bring together multidisciplinary researchers whose mission is to study sustainable processes and systems, whether natural or human designed, that will be efficient and less consumptive and will promote conservation of the earth. For more information, call 480/727-1249, or access the STAR Center Web site at www.east.asu.edu/research/star.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

Herberger Center for Design Excellence

The Herberger Center for Design Excellence is the research, outreach, and publication arm of the College of Architecture and Environmental Design. The center facilitates and promotes research, scholarship, and creative activity among the faculty and students of the college in the fields of architecture, interior design, industrial design, graphic design, landscape architecture and urban design, and environmental planning.

In keeping with its outreach mission, the center also publishes reports, newsletters, and books that help to inform debate on key design and planning issues in the desert southwest. The center works closely with the faculty to publish books, working papers, and conference proceedings that promote scholarship in the planning and design disciplines.

The Joint Urban Design Program (JUDP), based in downtown Phoenix, is the center's outreach arm. It facilitates interaction among college faculty, students, and the broader community, and offers design as a way to further dialogue

and to address urban issues. The JUDP conducts intensive workshops, (community-based charrettes) that help neighborhoods, groups, and other city stakeholders focus on concerns and strategies to respond to critical needs. Student groups and faculty work with the JUDP to identify real world problems that they address in studio projects. For more information, call 480/727-5146, or access the JUDP Web site at www.asu.edu/caed.

W. P. CAREY SCHOOL OF BUSINESS

Arizona Real Estate Center

The Arizona Real Estate Center (AREC), established in 1980, serves a multifunction research and educational role to foster better understanding of the real estate sector of the Arizona economy. Housing, commercial real estate, and construction activity data for Arizona and Maricopa County are collected by the center and are utilized for a variety of ongoing projects, including the calculation of affordability indexes and the computation of housing appreciation figures for the metropolitan Phoenix area.

For more information, call 480/965-5440, access the AREC Web site at www.wpcarey.asu.edu/seid/arec, or write

ARIZONA REAL ESTATE CENTER
PO BOX 874011
TEMPE AZ 85287-4011

Bank One Economic Outlook Center

The Bank One Economic Outlook Center (EOC), established in 1985, specializes in economic forecasts for Arizona and the Western states. The center publishes the *Bank One Arizona Blue Chip Economic Forecast* (monthly), *Greater Phoenix Blue Chip Economic Forecast* (quarterly), *Western Blue Chip Economic Forecast* (10 issues per year), and *Blue Chip Job Growth Update* (monthly), an update of current job growth in the United States. The center also publishes *Mexico Consensus Economic Forecast* (quarterly), which forecasts and provides historical data on the Mexican economy.

For more information, call 480/965-5543, access the EOC Web site at www.wpcarey.asu.edu/seid/eoc, or write

BANK ONE ECONOMIC OUTLOOK CENTER
PO BOX 874011
TEMPE AZ 85287-4011

Center for the Advancement of Small Business

The Center for the Advancement of Small Business (CASB) is a 21st-century leader in business education, practice, and research providing high-quality, relevant programs, and information services focused on small business since 1994. The center enables students and existing small and medium-size businesses to participate, contribute, and compete in the global economy.

The center provides students from all disciplines with programs and resources that prepare them for leadership positions in small and medium-size businesses, and aids small and medium-size businesses in the continuous improvement of human resources and business practices. CASB also engages in applied research on entrepreneurship and the emerging changes and trends in small business.

For more information, visit CASB in BAC 101, call 480/965-3962, access the CASB Web site at www.wpcarey.asu.edu/seid/casb, or write

CENTER FOR THE ADVANCEMENT
OF SMALL BUSINESS
PO BOX 874406
TEMPE AZ 85287-4406

Center for Advancing Business Through Information Technology

The Center for Advancing Business through Information Technology (CABIT) focuses on research and educational innovations in technology and business that have been accomplished since 2002. CABIT explores how technological innovations are transforming business operations and provides a forum for interactions between the academic and the practitioner communities. The aim is to leverage the internationally recognized expertise of the ASU faculty, to be in active partnership with industry, and to address current issues related to the technological impact on business.

One of the primary goals of CABIT is to encourage interdisciplinary research within the School of Business. Business faculty members then share their findings with colleagues throughout ASU who have a common interest regarding the impact of technology on business.

The creation of CABIT is an outgrowth of a decade of significant investment in the development of innovative business management programs and the recruitment of technology-savvy faculty. Similarly, the dean's office has worked with School of Business faculty to successfully advance the recommendations of the E-Business Task Force by implementing significant changes in the M.B.A. and undergraduate programs. For more information, call 480/965-2280, access the CABIT Web site at www.wpcarey.asu.edu/seid/cabit, or write

CENTER FOR ADVANCING BUSINESS THROUGH
INFORMATION TECHNOLOGY
PO BOX 873606
TEMPE AZ 85287-3606

CAPS Research

CAPS (Center for Advanced Purchasing Studies) Research was established in November 1986 by a national affiliation agreement between the ASU W. P. Carey School of Business and the Institute for Supply Management. It is the first and only program of its kind in the nation and is located in the ASU Research Park, about eight miles south of the ASU Main campus. CAPS Research conducts in-depth research into the problems facing the purchasing profession today and, through its studies, seeks to improve purchasing effectiveness and efficiency and the overall state of purchasing readiness.

For more information, call 480/752-2277, access the Web site at www.capsresearch.org, or write

CAPS RESEARCH
ASU RESEARCH PARK
2055 E CENTENNIAL CIRCLE
PO BOX 22160
TEMPE AZ 85285-2160

RESEARCH CENTERS

Center for Business Research

The Center for Business Research (CBR) has been a consistent source of information on the Arizona and metropolitan Phoenix economies since 1951. Both the business community and the public have access to the economic indicators produced by the ongoing projects of the center, including quarterly net migration estimates for Arizona and Maricopa County. CBR also conducts projects under the sponsorship of private and public agencies. Recent examples include the economic impact of the Fiesta Bowl, a study of seasonal migration to Arizona, and an analysis of the Arizona Lottery. A monthly publication of the center, *AZB/Arizona Business*, plays a major role in disseminating to the public the economic information compiled by the research centers of the Seidman Institute. CBR staff is available to respond to inquiries and to provide available data.

For more information, call 480/965-3961, access the CBR Web site at www.wpcarey.asu.edu/seid/cbr, or write

CENTER FOR BUSINESS RESEARCH
PO BOX 874011
TEMPE AZ 85287-4011

Center for Services Leadership

Since 1985 the Center for Services Leadership (CSL) has been a leading university-based hub devoted to the study of services marketing and management. The CSL addresses how any company can improve internal service processes and use service and customer satisfaction as a competitive advantage. The center encourages firms to share the best ideas and practices for adaptation across industries. Though grounded in marketing, the center's work is cross-functional, integrating concepts and techniques from marketing, operations, human resources, and management.

The center's areas of expertise include customer retention and loyalty; service quality; service delivery; professional services such as healthcare, accounting, and consulting; customer satisfaction; services strategy; service culture; and service recovery. A leader in the business and academic communities, the center's work advances the knowledge base in the field and provides applicable frameworks, concepts, and tools.

The center offers its partner firms topflight executive education in services through the annual "Activating Your Firm's Service Culture" symposium, the annual "Services Marketing and Management" institute program, and the annual "Information Technology Services Marketing" course and provides customized executive education programs and research projects tailored to and conducted for charter member firms.

The center also actively supports the W. P. Carey School of Business M.B.A. program that offers a specialization in Services Marketing and Management. This specialization infuses strong company-based experience and encourages summer internships.

For more information, visit the CSL in BAC 440, call 480/965-6201, or write

CENTER FOR SERVICES LEADERSHIP
PO BOX 874106
TEMPE AZ 85287-4106

L. William Seidman Research Institute

The mission of the L. William Seidman Research Institute is to encourage and support applied business research by serving as a public access point to the W. P. Carey School of Business. Specific goals include transferring new knowledge to the public; supporting faculty and student research; encouraging the development of educational programs grounded in business research; and conducting high-quality, applied business research.

The institute encourages research activity by providing research support services to the faculty, staff, and students of the college. These services include facilitating grant preparation and assistance in grant administration. The institute's research centers act as the focal point for involving faculty and students in applied research on important issues identified by the business community.

The institute also serves an important role in the broader educational mission of the W. P. Carey School of Business by disseminating the findings of research conducted by the faculty, students, and research center staff, as well as the results of business research from other sources around the world. This is accomplished through a variety of mechanisms: newsletters and research reports; seminars and conferences; Internet Web pages; media interviews and press releases; and by responding to inquiries from businesses, public officials, and the community. For more information, call 480/965-5362, access the institute's Web site at www.wpcarey.asu.edu/seid, or write

L. WILLIAM SEIDMAN RESEARCH INSTITUTE
PO BOX 874011
TEMPE AZ 85287-4011

Institute for Manufacturing Enterprise Systems

See "Institute for Computing and Information Science and Engineering," page 36, for information about this joint venture of the Ira A. Fulton School of Engineering and the W. P. Carey School of Business.

COLLEGE OF EDUCATION

Center for Indian Education

The Center for Indian Education is an interdisciplinary research and service center established in 1959. It promotes studies in American Indian policy and administration that contribute to scholarship and effective practices in education, professional training, and tribal capacity building. It is structured to foster relations between the university and sovereign tribes and to provide training and technical assistance for community programs. The center publishes the *Journal of American Indian Education* and sponsors workshops and colloquia that bring together scholars and tribal community leaders.

The center provides leadership through a group of American Indian faculty and is organized on the basis of scholarly expertise of the faculty. In addition to College of Education faculty, responsibilities are shared by faculty from the School of Social Work, the School of Justice Studies, the College of Liberal Arts and Sciences, and the College of Law. Areas currently studied include administrative leadership, policy analysis, bilingual

education, health and welfare policy, justice studies, and program development in professional studies.

For more information, visit the center in ED 402, call 480/965-6292, or access the center's Web site at coe.asu.edu/cie.

CRESMET

See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 32.

Education Policy Studies Laboratory

Located within the College of Education, the Education Policy Studies Laboratory (EPSL) conducts and coordinates original research in areas such as student performance standards, assessment, curriculum, and commercialism in schools. EPSL not only disseminates its analyses and reports to policy makers and educators, but concentrates on providing the public with readable accounts of research.

The EPSL houses two research units—the Commercialism in Education Research Unit (CERU), which is the only national academic research center dedicated to schoolhouse commercialism, and the Education Policy Research Unit (EPRU), which conducts original research and facilitates implementation of educational innovations.

For more information, visit EDB L1-01, call 480/965-1886, or access the laboratory's Web site at www.asu.edu/educ/epsl.

Southwest Center for Education Equity and Language Diversity

The Southwest Center for Education Equity and Language Diversity conducts, supports, and promotes research, scholarship, and innovative practice in language education designed for minority students in public schools. The center gives priority to scholarship and field-based work relating to educational equity and the systematic usage of heritage languages and cultures. The aim is to integrate these resources into the educational experience of all children and youth.

The center's scope of work is driven by a need to merge several related topics into one articulated conversation: bilit-eracy; promoting the role of public education to strengthen communities; and enabling binational collaboration among educators. The long-term vision is to help develop a new pedagogy tailored to the needs of the bicultural region the center serves. The integration of these themes shapes the scope of work for the center in the following areas:

1. Within the broad scope of educational policy research, the center focuses on scholarly inquiry that contributes to informed and enlightened discourse on language policy for schools and society, especially on the harmonious coexistence of English, the national language, and Spanish, the second most used language in our society.
2. Life in the American Southwest is bicultural and increasingly binational. In this Pan-American context, bilingualism will gain in importance. Equally important will be the collective ability of residents on both sides of the border to work harmoniously in pursuit of a common destiny that will be ever more intertwined. Schools must help

children and youth develop skills and predispositions to face this challenge.

3. Mexico and the United States are becoming more interdependent. In this context, Mexican educators should have opportunities to contribute to improving education for Mexican immigrant children in U.S. schools. To enable this, schools must create pilot projects and an infrastructure for collaboration among institutions and individuals on both sides of the U.S.-Mexico border.

For more information, visit the center in ED 440, call 480/965-7134, or access the center's Web site at www.asu.edu/educ/sceed.

IRA A. FULTON SCHOOL OF ENGINEERING

Arizona Biodesign Institute

This institute has a collaborative relationship with the Ira A. Fulton School of Engineering. For more information, see "Arizona Biodesign Institute," page 41.

Center for Low Power Electronic Research

The Center for Low Power Electronic Research is a collaborative effort of the University of Arizona and ASU to address fundamental, industry-relevant research problems in the design of ultra-low power microelectronic systems. The center is formed under the State/Industry/University Cooperative Research initiative of the National Science Foundation (NSF). The NSF and the State of Arizona recognize that Arizona has the key ingredients to become a leader in this technology, such as the world's leading companies involved in the manufacture of portable computing and communication systems. The center's technical areas of focus include

1. basic materials, alternative materials, and their fabrication;
2. device design optimization;
3. design of digital, analog, and hybrid low power circuits; and
4. power-based physical design for single- and multi-chip VLSI systems.

For more information, visit the center in ENGRC 115, call 480/965-8654, or access the Engineering Research Services Web site at www.asu.edu/~ers.

CRESMET

See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 32.

Center for Solid State Electronics Research

The Center for Solid State Electronics Research (CSSER) focuses on research in the areas of epitaxial semiconductor crystal growth, device characterization and modeling, defect behavior in semiconductor material characterization, environmentally benign and other novel processing, fine line lithography, surface analysis, and transport. Major programs address semiconductor device modeling, transport theory, optoelectronics, ferroelectrics, semiconductor processing, microwave devices, and ultra-submicron and nano-structured devices. New thrust areas include molecular electronics and MEMS.

RESEARCH CENTERS

For more information, visit CSSER in ENGR 115, call 480/965-3708, or access the CSSER Web site at ceaspub.eas.asu.edu/csser.

Institute for Computing and Information Science and Engineering

The Institute for Computing and Information Science and Engineering (InCISE) fosters interdisciplinary research, education, and entrepreneurship in computing. A collection of basic research activities within the Department of Computer Science and Engineering (CSE) forms the inner core of InCISE, while the activities to which CSE contributes form the outer core of the institute. The three core research groups of InCISE are the Center for Cognitive Ubiquitous Computing, the Intelligent Information Integration core area, and the Information Assurance core area. InCISE also collaborates with five affiliated research groups: the Consortium for Embedded and Internetworking Technologies; the Partnership for Research in Stereo Modeling; the Arts, Media and Engineering Research Center; the Center for Advancing Business through Information Technology; and the Software Factory.

In addition, InCISE serves as the focal point for a host of researchers from various disciplines who want to get connected to the computing and information community at ASU. These domains include cognitive sciences, health sciences, social sciences, earth sciences, space sciences, biosciences, disability studies, and linguistics.

Institute for Manufacturing Enterprise Systems

The Institute for Manufacturing Enterprise Systems (IMES) is a joint venture of the W. P. Carey School of Business and the Ira A. Fulton School of Engineering, established to enhance manufacturing research and industrial collaboration at the interface between the two colleges. The institute's mission is to establish ASU as an international leader in the creation and dissemination of new knowledge in the area of global manufacturing for the new economy. It particularly focuses on how manufacturing impacts Arizona. Research thrust areas include virtual manufacturing, enterprise systems, knowledge management, and software in the system solution.

For more information, visit the institute in GWC 402, call 480/965-3709, or access the Engineering Research Services Web site at www.eas.asu.edu/~ers.

Institute for Studies in the Arts

The Ira A. Fulton School of Engineering has a collaborative relationship with this institute. For more information, see "Institute for Studies in the Arts," page 32.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Ceramics Research Center

The Ceramics Research Center was established in 2002 as part of the ASU Art Museum and features selections from the more than 3,000 ceramics works in the collection. Works are shown in open storage, in a gallery with changing exhibitions, and in the Susan Harnly Peterson Ceramics Archive. The center offers opportunities for hands-on study and enjoyment of one of the outstanding ceramics collections in the country. For more information, call 480/

727-8170, or access the museum's Web site at asuartmuseum.asu.edu.

Institute for Studies in the Arts

The Katherine K. Herberger College of Fine Arts has a collaborative relationship with this institute. For more information, see "Institute for Studies in the Arts," page 32.

COLLEGE OF LAW

Center for the Study of Law, Science, and Technology

Located in the College of Law, the Center for the Study of Law, Science, and Technology conducts research, edits *Jurimetrics: The Journal of Law, Science and Technology* in cooperation with the American Bar Association Section on Science and Technology, and sponsors seminars, workshops, and conferences. Through these activities, the center seeks to contribute to the formulation and improvement of law and public policy affecting science and technology and to the wise application of science and technology in the legal system. Current areas of research include communications and telecommunications law, computer-related law, forensic science and statistics, legal issues and biotechnology, law and medicine, and law and social science.

For more information, visit the center in LAW 229A, or call 480/965-6606.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Arizona Center for Medieval and Renaissance Studies (ACMRS)

The Arizona Center for Medieval and Renaissance Studies is a research unit serving affiliate scholars from ASU, Northern Arizona University, and the University of Arizona. It represents a variety of disciplines, including history, literature, philosophy, religion, language, music, art, and science. ACMRS enriches academic offerings in medieval and renaissance studies by sponsoring one or two visiting professors each year. Graduate research assistantships are also available through the center.

Significant opportunities for the study of the Middle Ages and the Renaissance exist at ASU. Hayden Library has an extensive microfilm collection and many rare books in medieval and renaissance studies. ACMRS also sponsors a lecture series each semester covering a variety of topics.

Other programs include an annual conference, a public symposium, a summer study abroad program at the University of Cambridge (United Kingdom), and student exchange programs with the University of Copenhagen (Denmark) and the University of Kalmar (Sweden).

Since 1996, ACMRS has published *Medieval and Renaissance Texts and Studies*, a major series of editions, translations, and reference works. In collaboration with the University of Massachusetts at Dartmouth and the University of Kansas, ACMRS sponsors and coedits *Mediterranean Studies*, an annual interdisciplinary journal publishing articles on all aspects of the Mediterranean region. ACMRS also sponsors a book series titled *Arizona Studies in the Middle Ages and the Renaissance*, published by Brepols (Belgium).

ACMRS also partners with the Renaissance Society of America and the University of Toronto in *Iter*, a massive,

retrospective, online medieval and renaissance bibliography covering all languages and disciplines, and is the official site of the Medieval Academy of America's online data project offering information on medieval centers, programs, committees, and regional associations in North America.

For more information, visit ACMRS in COOR 4429, call 480/965-5900, or access the ACMRS Web site at www.asu.edu/clas/acmrs.

Cancer Research Institute

Significant advances in the treatment of human cancer and other serious medical problems depend upon scientists well trained in organic chemistry, biochemistry, and biology. The Cancer Research Institute provides graduate students with the specialized training necessary for research in the discovery and development of effective anticancer drugs. Among various activities, laboratory personnel are pursuing a unique program concerned with isolation, structural identification, and synthesis of naturally occurring anticancer agents from marine animals, plants, and marine microorganisms.

For more information, visit the institute in CRI 209, or call 480/965-3351.

Center for Asian Studies

Through its East Asian and Southeast Asian studies programs, the Center for Asian Studies serves as research coordinator for Asian studies' faculty and graduate students in a variety of disciplines. The center sponsors colloquia and research conferences. It also publishes two scholarly *Monograph Series* and a newsletter on Southeast Asian studies, *Suvannabhumi*, which have an international readership. Graduate students may apply for research assistantships in the center and its program.

The center works with the office of International Programs to administer student exchange programs with a number of universities in Asia. The center also sponsors an Asian film series each semester. A reading room is located in the center office suite offering a variety of Asian and English language publications and newspapers from and about Asia.

For more information, visit the center in COOR 6611, or call 480/965-7184.

Center for Meteorite Studies

The nation's largest university collection of extraterrestrial materials is available for research in the Center for Meteorite Studies. Teaching and research on meteorites, meteorite craters, and related areas of space and planetary science are accomplished through the regular academic units in cooperation with the center.

For more information, visit the center in PS C151, or call 480/965-6511.

Center for Solid State Science

The Center for Solid State Science is a research unit within the College of Liberal Arts and Sciences.

The membership comprises faculty and academic professional researchers and research support personnel, most of whom hold simultaneous appointments in affiliated academic units. The Center for Solid State Science is the ASU focal point for interdisciplinary research on the properties

and structure of condensed phases of matter at the interfaces between solid-state chemistry and physics, earth and planetary science, and materials science and engineering. It also supports interdisciplinary approaches to science and engineering educational outreach activities.

The center provides an administrative home for large, multidisciplinary, block-funded research projects. These include the NSF-supported Materials Research Science and Engineering Center (MRSEC) and the Interactive Nano-Visualization for Science and Engineering Education (IN-VSEE) project. To support these activities, members of the center operate modern and sophisticated research facilities and organize regular research colloquia and symposia.

Principal topical areas of research in the center include studies of structure and reactivity of surfaces and interfaces, electronic materials, advanced ceramics and glasses, synthesis of new materials, high-pressure research, development of techniques in high-resolution electron microscopy and micro-structural and chemical analysis, development of visualization techniques at different scales of magnification for science education, and community outreach.

The research facilities of the center include the Center for High Resolution Electron Microscopy (CHREM) and the Goldwater Materials Science Laboratories (GMSL).

CHREM. The center operates several ultra high-resolution and ultra high-vacuum electron microscopes and supports microscopy methods and instrumentation development, including holography, position- and time-resolved nano-spectroscopy, and energy-filtered imaging and diffraction. The center provides high-resolution capability for a large external group from other universities and industry.

GMSL. These facilities include

1. the Materials Facility (MF), which provides a wide range of synthesis and processing capabilities for preparation of specimen materials. MF also provides thermal analysis for study of solid-state reactions and Auger and X-ray photoelectron spectroscopy for analysis of surface compositions and electronic structure of surfaces;
2. the Materials Science Electron Microscopy Laboratory (MSEML), which provides state-of-the-art electron microscopes for analysis of microstructures, including imaging and diffraction, and high spatial resolution chemical analysis using energy dispersive X-ray and electron energy loss micro-spectroscopy;
3. the Ion Beam Analysis of Materials (IBeAM) facility, which provides compositional and structural determination of the surface and near-surface regions (0–2 mm) of solids by ion beam analysis where elemental composition and depth distribution information are needed. Channeling experiments are used to determine crystal perfection and site occupancy;
4. the Secondary Ion Mass Spectrometry (SIMS) laboratory, which provides depth profile and point composition analysis with very high chemical sensitivity, on the order of one part per billion, including isotopic analysis for many materials.

RESEARCH CENTERS

SIMS is also used as a chemical microscope, to image elemental distributions on specimen surfaces;

5. the Scanning Probe Microscopy Laboratory (SPM), which provides facilities for nanoscale viewing of solid surfaces using scanning tunneling microscopy (STM), atomic force microscopy (AFM), and related techniques. The SPM laboratory serves as a focus for undergraduate research training programs and educational and outreach activities;
6. the Facility for High Pressure Research, which provides facilities for synthesis of new materials and for geochemistry/geophysics studies at up to 25 Gpa (250,000 atmospheres) and temperatures greater than 2000° C. These facilities are complemented by diamond anvil cells capable of in situ studies at up to one million atmospheres. This laboratory provides a focus for core research projects within the MRSEC;
7. the Goldwater Materials Visualization Facility (GMVF), which consists of a battery of linked workstations for remote operation of instruments and data collection, capture of images in real time, and advanced computing and simulation of materials. The GMVF is used in research and in undergraduate and graduate education, as well as in educational and community outreach; and
8. other specialized laboratories under development, which include high-resolution X-ray diffraction for thin film characterization, optical spectroscopy, and nuclear magnetic resonance spectroscopy for solid-state studies and research on materials under extreme conditions.

These facilities provide the primary teaching and research resources used by students in the Science and Engineering of Materials interdisciplinary Ph.D. program and the undergraduate option for materials synthesis and processing. The facilities are also used extensively by students in disciplinary programs from affiliated departments.

For more information, visit PS A213, call 480/965-4544, or access the Web site at www.asu.edu/clas/csss.

Center for the Study of Early Events in Photosynthesis

The ASU Center for the Study of Early Events in Photosynthesis was established in 1988 as part of a joint grant program of the Department of Energy, the National Science Foundation, and the Department of Agriculture. In 1990, it was designated a Regents Center of the University. Since September of 1995, it has been funded by the Office of the Vice President for Research and Economic Affairs and the College of Liberal Arts and Sciences. The center consists of about 90 students, postdoctoral associates, and research scientists led by 15 faculty members in the Department of Chemistry and Biochemistry and the School of Life Sciences. These research groups share a common goal: understanding the process of photosynthesis, which is responsible for producing all of our food and filling the vast majority of our energy and fiber needs. The impetus for development of the center was the premise that photosynthesis is a complex problem that will only yield to an investigation using a wide variety of approaches and techniques. Thus, the center

serves as an infrastructure supporting individual ASU scientists and fostering multidisciplinary cooperative research projects.

The ultimate objective of the research is the elucidation of the basic principles governing the biochemical and biophysical processes of photosynthetic energy storage. This goal is being realized via investigation of the early events of photosynthesis, including light absorption and excitation transfer in photosynthetic antennas; the mechanism of primary photochemistry in plant and bacterial systems; secondary electron transfer processes; structure and assembly of photosynthetic antennas, reaction centers, and electron transfer proteins; pigment-protein interactions; artificial and biomimetic photosynthetic solar energy conversion systems; and mechanisms of biological electron transfer reactions.

The center is equipped with state-of-the-art instrumentation that allows students to do frontier research in a broad range of disciplines. Equipment includes a variety of pulsed lasers for measurements with time resolution ranging from sub-picoseconds to seconds, a 500 MHz NMR instrument, an EPR spectrometer, a protein X-ray facility, spectrophotometers, fluorometer, a protein sequencer, and an amino acid analyzer.

The center sponsors a weekly Photosynthesis Seminar Series and brings in visiting scientists from around the world to carry out collaborative research. Undergraduate, graduate, and postdoctoral training programs in the Department of Chemistry and Biochemistry and within the Plant Biology curriculum are central components of the center's activities.

For more information, visit the center in PS D207, or call 480/965-1963.

CRESMET

See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 32.

Exercise and Sport Research Institute

The Exercise and Sport Research Institute (ESRI) is an interdisciplinary research unit located in the Department of Kinesiology and serves, in part, as a research facility for the interdisciplinary doctoral program in exercise science. Faculty and graduate students within ESRI investigate a wide range of topics concerning physical activity, including different age cohorts, levels of health, levels of ability and fitness, levels and types of training, and physical and emotional stresses, nutrition, and genetic backgrounds. Where applicable, these aspects are studied using an interdisciplinary approach. ESRI is affiliated with a number of clinical and research institutions in the Phoenix area.

ESRI houses numerous specialized research laboratories. *Biomechanics* applies the laws of mechanics to the study of human movement. Current research examines kinematic and kinetic determinants of locomotion patterns in walking, running, cycling, and swimming; neuromusculoskeletal modeling and computer simulation of locomotion in clinical and sport applications; ergonomics; and mechanisms underlying upper extremity repetitive strain injuries. *Exercise physiology* is the study of physiologic systems (cardiovascular, respiratory, muscular, endocrine, metabolic) under conditions of stress, particularly exercise stress. Both acute exercise responses and chronic adaptations resulting from

exercise training are considered in relation to health and performance and are investigated in several specialized labs. The *Exercise Biochemistry Lab* examines subcellular systems involved in the provision and regulation of energy transfer during exercise. The *Exercise Endocrinology Lab* studies interrelationships of exercise and training with stress, hormones, neurotransmitters, and the immune system. Research conducted in the *Applied Exercise Physiology Lab* is aimed at better understanding how physical activity and exercise influence the health, fitness, and athletic performance of able-bodied and physically-challenged individuals. Research in the *Motor Control Lab* investigates how movement is regulated and controlled via the nervous system in normal and pathological populations. Special emphases include motor deficits attributed to basal ganglia dysfunction and upper extremity coordination, particularly finger and hand posture, in reaching and prehensile movements. *Motor development* studies how human movement is generated and evolves throughout the lifespan. Current research focuses on learning and development of bimanual coordination. Timing and coordination of perceptual-motor skills are measured in normal developing children, persons with Down syndrome, and adults to investigate cerebral asymmetries and specificity of learning. The *Sport and Exercise Psychology Lab* examines the relationship between psychological constructs and physical activity and the influence of participation in physical activity on psychological phenomena. Current research is designed to examine the influence of physical activity, fitness, and particular sport practices on psychophysiological mechanisms and cognitive functioning; the effect of psychological skills for performance enhancement; motivational aspects of physical activity across the lifespan; and the effects of exercise on mental health.

For more information, visit ESRI in PEBE 159, or call 480/965-7906.

Hispanic Research Center

The Hispanic Research Center (HRC) at ASU is an interdisciplinary unit, dedicated to research and creative activities, that is university-wide but administered through the College of Liberal Arts and Sciences. The HRC performs basic and applied research on a broad range of topics related to Hispanic populations, disseminates research findings to the academic community and the public, engages in creative activities and makes them available generally, and provides public service in areas of importance to Hispanics.

Faculty, staff, and advanced graduate students organize into working groups to develop a broad range of specific projects and lines of inquiry within the general categories of Hispanic entrepreneurship, science and technology, information and data compilation and dissemination, the Hispanic polity, and the arts. Ongoing activities of the HRC, primarily funded by external grants, include the Arizona Hispanic Business Survey, the *Bilingual Review Press*, the Community Art and Research Outreach (CARO), Chicana and Chicano Space: Art Education Web site, Digital Divide Solutions Project, Project 1000, and the Western Alliance to Expand Student Opportunities.

CARO sponsors creative activities and research in collaboration with community-based organizations and ASU faculty.

For more information, visit the HRC in CFS 104, call 480/965-3990, or access the HRC Web site at www.asu.edu/clas/hrc.

Institute of Human Origins

The Institute of Human Origins (IHO), founded in 1981 by Donald Johanson, became part of the College of Liberal Arts and Sciences in 1997. IHO is a multidisciplinary research organization dedicated to the recovery and analysis of the fossil evidence for human evolution and the establishment of a chronological framework for human evolutionary events. IHO's scientists carry out field research at sites in Africa, the Middle East, and Asia. IHO houses the largest collection of *Australopithecus afarensis* casts (including "Lucy," a 3.2 million-year-old human ancestor) in the world as well as an extensive collection of other fossil hominid casts. IHO's library contains more than 3,000 volumes, numerous journals, videotapes, audiotapes, and slides related to human evolution and fossil sites. IHO produces periodic newsletters, offers lecture series, conducts tours and workshops, and supports numerous informal science education outreach projects.

For more information, visit IHO in SS 103, call 480/727-6580, or access the IHO Web site at www.asu.edu/clas/iho.

Joan and David Lincoln Center for Applied Ethics

The Joan and David Lincoln Center for Applied Ethics (LCAE) is a university-wide center for applied ethics that is administratively housed in the College of Liberal Arts and Sciences. Its mission is

1. to develop and coordinate a strong focus on theoretical and applied ethics across intellectual disciplines and professional programs within the university,
2. to support teaching and creative research in ethics, and
3. to foster collaboration between the university and its varied publics to address major ethical challenges facing contemporary society.

For more information, visit LCAE in AG 355, call 480/727-7691, or access the Web site at www.asu.edu/clas/lincolncenter.

Latin American Studies Center

Arizona maintains an ever-growing interest in Latin America that draws upon an extensive experience of historical and geographical ties. The Latin American Studies Center is the focal point for these interests at ASU. Through its program, the center serves the university community and maintains strong ties with various Latin American organizations in the state and the nation. Principal activities are coordinating Latin American studies at the undergraduate and graduate levels; sponsoring student exchange programs; organizing events featuring Latin American arts and culture, numerous seminars, and research conferences; publishing a wide range of professional materials; and undertaking and facilitating research about the region.

RESEARCH CENTERS

The center administers student exchange programs with the Catholic University of Bolivia and three Mexican universities—the Autonomous University of Guadalajara, the Autonomous University of Nuevo Leon, and the University of Sonora. Each spring several ASU students are selected to attend courses at the Latin American universities while Bolivian and Mexican students attend ASU. The center also has an exchange agreement with the Pontific Catholic University of Ecuador for faculty and students as well as summer programs in Quito, Ecuador, and Ensenada, Mexico.

The center is a member of the American Modern Language Association, Consortium of U.S. Research Programs for Mexico, Consortium for Latin American Studies Association, Pacific Coast Council on Latin American Studies, Rocky Mountain Council for Latin American Studies, Consortium of Latin American Studies Programs, and Conference on Latin American History.

The center directly encourages research, not only through its research conferences, but also through close coordination with the Latin American collection of Hayden Library and networking with Latin American universities.

For more information, visit the center in COOR 4450, or call 480/965-5127.

Russian and East European Studies Center

The ASU Russian and East European Studies Center (REESC) functions within the College of Liberal Arts and Sciences. REESC administers research, training, and outreach programs involving the lands and people of Eastern Europe and Eurasia. More than two dozen ASU faculty from five colleges and University Libraries collaborate in center programming. REESC also works with other postsecondary educational institutions, government agencies, local high schools, and private corporations in coordinating programs of research, study, travel, and exchange relating to Russia, Eastern Europe, and Eurasia. The center is an institutional member of the American Association for the Advancement of Slavic Studies (AAASS). ASU is also a member of the International Research and Exchanges Board (IREX), which administers United States academic exchanges with Russia and Eastern Europe.

The Critical Languages Institute (CLI) offers intensive summer language instruction in the less commonly taught languages of Eastern Europe and Eurasia. Summer practicums and study abroad programs offer students opportunities to take classes and conduct research overseas. REESC/CLI faculty mentor students for competitive national fellowships, including Fulbright and the National Security Education Program.

For more information, call REESC at 480/965-4188 or CLI at 480/965-7706, or access their Web sites at www.asu.edu/reesc and www.asu.edu/cli.

Virginia G. Piper Center for Creative Writing

The Virginia G. Piper Center for Creative Writing at ASU was created in the fall of 2003. The center's goal is to elevate the university's creative writing program to international prominence while enriching the intellectual and artistic life of Arizona and the entire southwest.

The historic ASU President's House, located at Palm Walk and Tyler Mall, will serve as the permanent campus

home for the center. Renovations are anticipated to be completed in the fall of 2004.

Other programs funded by the center include

1. an international writer's exchange program;
2. funding of an endowed chair that will be used to attract high profile, distinguished authors to campus for extended residencies, authors who will work closely with ASU faculty and students; and
3. creation of the Piper Creative Scholars Program, designed to support ASU faculty and others in the pursuit of research, writing, and other creative activities.

For more information, access the center's Web site at www.asu.edu/pipercwcenter.

COLLEGE OF PUBLIC PROGRAMS

Center for Nonprofit Leadership and Management

The Center for Nonprofit Leadership and Management (CNLM) promotes the understanding and improved practice of nonprofit organizations. The center coordinates a nonprofit sector research program, facilitates educational offerings in nonprofit studies, serves as a convener on topical issues, and provides selected technical assistance and information services. The center facilitates relationships among students, faculty, and community organizations across a range of research and outreach activities. In addition, the center convenes leaders and managers from the nonprofit, business, and government sectors on topical issues pertinent to building nonprofit capacity in the region. The center supports the activities of three complementary nonprofit leadership and management education programs: the ASU American Humanics Program (undergraduate certificate), a postbaccalaureate program (graduate certificate in Nonprofit Leadership and Management), and a noncredit program (through the Nonprofit Management Institute). For more information, call 480/965-0607, or access the Web site at www.asu.edu/copp/nonprofit

Center for Urban Inquiry

The mission of the Center for Urban Inquiry (CUI) is threefold: critical social science research, community engagement, and innovative education. The research agenda prioritizes the scrutiny of economic and social privilege and disadvantage. Specific research requests from policymakers, nonprofit and government agencies, and citizen groups are also considered. This includes a rapid response community research initiative established to provide intensive feedback to community research requests that must be completed within a limited time frame, as well as long-term process and outcome evaluations of programs and policies in the private and public sectors. CUI also facilitates collaborative research efforts among faculty, research professionals, and students. Such research includes an examination of the individual and collective costs of poverty in the Southwest and the design of comprehensive research to explore the extent and nature of racial profiling among agents of social control.

CUI's direct community involvement ranges from the local to the global. This includes support of neighborhood groups advocating for homeowners and renters within the context of urban development and displacement, the

creation of a hospital-based community partnership to combat youth violence, and participation in United Nations summits on sustainable development and indigenous peoples' rights. The center serves the university and community through innovative educational endeavors, including a distance-learning college program for incarcerated women, in-depth research training for graduate and undergraduate students, and courses in service learning, community action research, and international urban issues. CUI also serves as the administrative and programmatic home for the needs-based Nina Mason Pulliam Legacy Scholars Program for nontraditional students.

For more information, call 480/965-9216, access the center's Web site at www.asu.edu/copp/urban, or write

CENTER FOR URBAN INQUIRY
ARIZONA STATE UNIVERSITY
PO BOX 874603
TEMPE AZ 85287-4603

Morrison Institute for Public Policy

Morrison Institute for Public Policy conducts research which informs, advises, and assists Arizonans. As part of the School of Public Affairs (College of Public Programs), the institute serves as a bridge between the university and the community. Through a variety of publications and forums, Morrison Institute shares research results with, and provides services to, public officials, private sector leaders, and community members who shape public policy. A nonpartisan advisory board of leading Arizona business people, scholars, public officials, and public policy experts assist the institute with its work. Morrison Institute was established in 1982 through a grant from Marvin and June Morrison of Gilbert, Arizona and is supported by private and public funds and contract research. The institute conducts research on a broad range of topics including areas such as education, urban growth, workforce development, economic development, arts and culture, quality of life, and science and technology.

For more information, call 480/965-4525, access the institute's Web site at www.asu.edu/copp/morrison, or write

MORRISON INSTITUTE FOR PUBLIC POLICY
ARIZONA STATE UNIVERSITY
PO BOX 874405
TEMPE AZ 85287-4405

VICE PRESIDENT FOR RESEARCH AND ECONOMIC AFFAIRS

Arizona Biodesign Institute

The Arizona Biodesign Institute (AzBio) was established by ASU to provide an intellectual and physical environment for large-scale interdisciplinary and collaborative research. The vision for the institute is to make it the benchmark for excellence in use-inspired research focused on the intentional manipulation of biological systems. Arizona Biodesign will be a catalyst for innovation, facilitating the multidisciplinary investigations in basic science and engineering that are required to design critical biotechnology solutions in the 21st century.

The hallmark of AzBio will be a physical and intellectual environment that leverages communication, collaboration,

integration, and a research agenda that emphasizes the application of discoveries to commercial uses and societal benefits. The research programs are clustered into four focus areas of increasing contemporary importance:

1. biologics and therapeutics,
2. nano-biosystems and devices,
3. neural interface engineering, and
4. integrative tools for genomics and informatics.

The output of AzBio will be measurable in terms of highly trained professionals, pioneering discoveries, new technologies, new practices, and new businesses—all of which can drive statewide economic development. AzBio will be a hub for biodesign research in central Arizona, building collaborative networks among scientists and clinical researchers from leading industries and institutions. The AzBio is anchored in an ASU Main research complex.

For more information, access AzBio's Web site at www.azbio.org.

Center for Environmental Studies

Established in 1974, the primary mission of the Center for Environmental Studies is to facilitate collaborations among faculty researchers and to aid decision making about environmental issues. Through its collaborations, both with ASU faculty and partners from government, business, and the educational community, the center advances the identification of key local and global environmental issues and collects reliable information to be used by scholars, policy makers, and the general public. For more information, access the CES Web site at ces.asu.edu.

The center is also home to the Central Arizona–Phoenix Long-Term Ecological Research (CAP LTER) project, one of only two urban sites in the NSF-funded LTER network. The CAP LTER project focuses on an arid-land ecosystem profoundly influenced, even defined, by the presence and activities of humans, and involves more than 50 associated faculty from biology, ecology, engineering, geography, geology, sociology, urban planning, and anthropology. For more information, access the CAP LTER Web site at caplter.asu.edu.

The center administers an NSF-funded Integrative Graduate Education and Research Training (IGERT) grant to develop a multidisciplinary program in urban ecology. The program's research component engages students in wide-ranging and multidisciplinary investigations into the ecology of cities, with the CAP LTER project providing the research infrastructure. For more information, access the IGERT Web site at ces.asu.edu/igert.

The center also facilitates applied environmental research projects undertaken by the Southwest Center for Environmental Research and Policy (SCERP), a consortium of five U.S. and four Mexican universities. SCERP develops a research agenda for the study of air and water quality, hazardous waste problems, environmental health issues, and growth management questions in the border region. For more information, access the Web site at www.scerp.org.

For more information, visit the center in TMPCT 151, call 480/965-2975, or access the center's Web site at ces.asu.edu.