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Excellence in Practice and Learning for Life

Carnegie Mellon emphasizes a deep connection between theoretical knowledge and practice: the university's interdisciplinary approach to education stresses the practical application and analysis of knowledge in institutional, social and historical contexts. "On a campus of 110 acres, research and teaching are conducted in more than 30 different fields of the arts, humanities, engineering, the sciences, social sciences, management and public policy. Students and faculty in these areas are in daily contact with one another, pursuing interdisciplinary projects, redefining fields of knowledge, pushing their own visions of the possible and contributing to the world around them," writes Jared L. Cohon, the eighth president of Carnegie Mellon in "The Innovative University," a volume of writings that celebrated Carnegie Mellon's centennial in 2000. Carnegie Mellon graduates are excellent practitioners in their chosen fields. The university is in the process of enriching and complementing this education to ensure that our students also gain broader, well-informed perspectives that will help them grow and change with their professions; interact wisely with the natural environment; and be responsible and informed citizens in an increasingly technological world and complex global culture.

From Technical School to International University

In a letter written in 1900, industrialist and philanthropist Andrew Carnegie offered to give the city of Pittsburgh \$1 million in bonds to fund a technical institute. The city provided 32 acres of land near Schenley Park, and the institution became known as the Carnegie Technical Schools. According to Carnegie's plans, the institution would train the sons and daughters of working-class families in five schools: Science and Technology, to train draftsmen and engineer's assistants; Fine and Applied Arts, for designers and art workers; Apprentices and Journeymen, for mechanics in manufacturing and construction; and Margaret Morrison Carnegie College, for home economists or secretaries. Within two decades, the Carnegie Technical Schools offered bachelor's, master's and doctor's programs, and fittingly changed its name to the Carnegie Institute of Technology.

In 1967, the trustees of the Mellon Institute and the Carnegie Institute of Technology merged the two institutions and adopted the name Carnegie Mellon University. In 1968, Margaret Morrison Carnegie College closed and the university organized a new College of Humanities and Social Sciences. New graduate-level colleges and schools also flourished, including the Graduate School of Industrial Administration (GSIA), the Heinz School of Public Policy and Management, and the School of Computer Science. As time progressed, new research centers and institutes developed on and off campus in specialties ranging from art conservation to sustainable computing. In 2004, GSIA was renamed the Tepper School of Business after alumnus David A. Tepper.

The Carnegie Institute of Technology has developed from a regional, technical college into Carnegie Mellon University, a selective, international research university that consistently ranks among the nation's best colleges in U.S. News & World Report, Newsweek and BusinessWeek magazines. The university is also a leader in environmental sustainability and energy efficiency, and is home to the nation's first Leadership in Energy and Environmental Design (LEED) certified dormitory. University Business magazine identified Carnegie Mellon as one of the nation's Higher Education Sustainability Stars.

Undergraduate students can pursue majors in six of the university's seven colleges: the Carnegie Institute of Technology (engineering), the College of Fine Arts, the Tepper School's business administration program, the College of Humanities and Social Sciences, the Mellon College of Science, and the School of Computer Science. Carnegie Mellon also has campuses in California and Qatar and is expanding its presence in Europe, Australia and Asia with master's programs and other educational partnerships.

A Unique Educational Experience

The university's diversity, focus on strong student-faculty ties and commitment to education outside the classroom combine to create a learning environment that is as uniquely Carnegie Mellon as the Tartan plaid on the kilts of its bagpipers.

Carnegie Mellon strives for a campus culture that reflects a fundamental respect for different ways of living, working, and learning so every student has the opportunity to reach her or his potential. The university community is diverse, with roughly 5,300 undergraduates, 3,500 graduate students, and more than 1,200 faculty members. About 10% of undergraduate students are underrepresented minorities and 15% hail from countries outside the U.S. Faculty and graduate students also come from across the globe.

The university's small student-to-faculty ratio gives students the opportunity for close interaction with their teachers — an essential component of academic success. But while professors spend a great deal of time with students, they also expect them to develop initiative, to critically assess their own progress and to work as teams. Working together, students and faculty create real-world projects with immediate impact. A design professor might critique a student's sketches of a company logo, or a team of students will work with professors and researchers to design an autonomous robot for a race across the desert. Faculty at Carnegie Mellon take an interest in their students' questions and concerns beyond the classroom. Some serve as academic advisors, while others seek undergraduate assistance with research projects or oversee student-proposed projects.

Equally important to the Carnegie Mellon education is the metacurriculum — the learning that occurs outside classes through community service, interacting and learning in the university's international community, or even just living in the residence halls.

Structure to Succeed, Freedom to Explore

A Carnegie Mellon education is marked by its strong focus on fundamental and versatile problem-solving skills in a specific discipline, but the university respects and values students' varied talents and interests that often span many specialties. At Carnegie Mellon, students can explore more than one field of study while developing the strong professional core that is the hallmark of a Carnegie Mellon education. The university encourages students to expand their thinking in new and exciting dimensions, whether by taking courses from disciplines across the university or pursuing a double major or minor — frequently in a different college. Students can even design their own majors. In a community rich with seven colleges, the academic options are as varied as the students who pursue them.

Though academic interests may differ, the university has structured its programs so students develop skills vital to all professions, with communication and reflective practice acting as the common threads connecting these skills. In order to excel in any field and lead a life of social responsibility and lifelong learning, students must be able to understand the theoretical basis and practical implications of knowledge and action, convey ideas and information effectively, and be reflective practitioners. Carnegie Mellon instills these qualities in students and gives them a wide array of perspective and opportunities by creating an environment of learning-by-doing, providing them with a strong analytical background, and encouraging them to do and make.

Strength in Research and Artistic Creation

At Carnegie Mellon, faculty members aren't just devoted teachers. They conduct groundbreaking research, create new and exciting art, and contribute to a growing global scholastic community. The university's faculty are continuously innovating, and the new knowledge they create and the methods they discover routinely benefit classroom learning. Each college and dozens of special centers focus on issues and developments that affect the world beyond Carnegie Mellon.

Researchers in the Mellon College of Science received a \$13.3 million grant to develop the National Center for Networks and Pathways, which will generate molecular biosensors that will change the way scientists look at living cells. A study by researchers in the College of Engineering found that cell phones and other portable electronic devices can interfere with the normal operation of critical electronics on airplanes. Meanwhile, in the university's College of Humanities and Social Sciences, faculty have made critical strides toward understanding what causes autism and how it can be treated more effectively. The National Science Foundation recently funded

a new Quality of Life Technology Engineering Research Center — a joint effort of Carnegie Mellon's School of Computer Science and the University of Pittsburgh — that will design and commercialize technology to help older adults and people with disabilities live independently and productively. New research from the Tepper School of Business showed small retailers that the best way to compete with megamarts is to use their existing customer data to develop new sales and marketing strategies. Students and faculty in the university's School of Design have collaborated with local foundations to create Explanatoids, cartoons designed to illustrate the importance of science, math and technology to the Pittsburgh region while stressing the role girls play in the careers of the future. Just down the road, faculty in the Heinz School are breaking new ground with studies on the different ways men and women negotiate.

Exploring Research and Creative Projects

Faculty aren't the only people busy with research on campus. Research is a vital component of undergraduate education at Carnegie Mellon. Students can initiate projects of their own or become involved with existing ones on campus. The Department of Biological Sciences, for example, has faculty mentors who help interested students find research opportunities that support their own intellectual curiosity. Drama students participate in every facet of productions, from set construction to acting. Students across campus are encouraged to work with faculty to pursue their own interests, and most departments offer courses for independent study that allow undergraduates to work on projects of their own design under the guidance of a faculty member.

Research projects often come with a financial cost, but Carnegie Mellon offers many sources of funding for students conducting independent research and creative projects. One popular source of funding is the university's Small Undergraduate Research Grant (SURG) program offered through the Undergraduate Research Initiative. (For more information, see the Undergraduate Research Initiative section in this catalog under "University Services.") These types of funding programs combined with the support and encouragement offered by faculty and staff on campus bring research — traditionally the mark of graduate education — into the undergraduate realm.

The World of Carnegie Mellon

Carnegie Mellon is often described as a competitive place — and it is. The university selects students from among the best in the world, so attending Carnegie Mellon means that you'll be with students who, like you, were at the top of their classes in high school. The university also stresses collaboration and teamwork, often across disciplines, where students share common goals and tasks while still bringing something unique to the interaction. Carnegie Mellon students are serious scholars who want to excel. The atmosphere is intense and demanding, but also encouraging and rewarding. Carnegie Mellon graduates enter society prepared to assume even greater challenges and equipped with an awareness of their own strengths and abilities.

But Carnegie Mellon students still have fun, and spend their free time planning for the coming weekend and forging some of the strongest friendships they've ever known. Students don't just develop a strong work ethic at Carnegie Mellon — they develop a strong sense of community. Through residence hall living, community service, group projects and numerous activities and clubs, students find they can belong to a range of communities. Carnegie Mellon also has the tradition of Spring Carnival, an annual three-day event whose buggy races and booths involve students and alumni from a multitude of academic and cultural backgrounds.

Carnegie Mellon Impacts the World

As a Carnegie Mellon graduate, you'll join a highly respected group of individuals who have changed the world as we know it. Whether pursuing further education or entering the work force, alumni consistently achieve the high goals they've set for themselves in a wide variety of academic and professional fields. One alumnus wrote the songs for "Godspell," while an alumna won the Tony Award for Best Performance by a Leading Actress in a Play for her performance in the Pulitzer Prize-winning "Doubt." Carnegie Mellon alumni created and starred in "Hill Street Blues," "L.A. Law," "NYPD Blue," "ER" and "Lost." More than 2,000 of our graduates are corporate chairs, presidents or vice presidents. Some 1,400 alumni are university professors and another 30 are deans. Most major symphonies around the country include Carnegie Mellon alumni.

The university's graduates are also prominent in government, and include a former White House staff assistant, a U.N. delegate and a former first deputy chairman of the presidium of the USSR. An astronaut who walked on the moon holds a Carnegie Mellon degree, as does the project director of NASA's Pioneer Interplanetary Probe. Five Carnegie Mellon alumni have gone on to win the Nobel Prize (three in economics, two in physics), and the works of many former art students hang in the permanent collections of more than 50 international museums.

Mission

To create and disseminate knowledge and art through research and artistic expression, teaching and learning; and to transfer intellectual products to society.

To serve students by teaching them problem-solving, leadership and teamwork skills, and the value of a commitment to quality, ethical behavior, society and respect for one another.

To pursue the advantages provided by a diverse and relatively small university community, open to the exchange of ideas, where discovery, creativity, and personal and professional development can flourish.

A Carnegie Mellon undergraduate education aims to prepare students for life and leadership. In a continually changing world, the most important qualities the university can help students develop are the abilities to think independently and critically, to learn, and to change and grow. As future leaders they must have courage to act, be sensitive to the needs and feelings of others, understand and value diversity, and honor the responsibilities that come with specialized knowledge and power.

Carnegie Mellon's undergraduate educational programs are designed to help students acquire:

- Depth of knowledge in their chosen areas of specialization and genuine intellectual breadth in other fields.
- Creativity and intellectual playfulness, moving beyond established knowledge and practice to create imaginative ideas and artifacts.
- Skilled thoughtfulness and critical judgment, which allow them to evaluate new ideas, identify and solve or explore problems, and appreciate a variety of different forms of analysis and thought.
- Skills of independent learning, which enable them to grow in wisdom and keep abreast of changing knowledge and problems in their profession and the world.
- A set of values, including commitment to personal excellence and intellectual adventure, concern for the freedoms and dignity of others, and sensitivity to the special professional and social responsibilities that come with advanced learning and positions of leadership.
- The self-confidence and resourcefulness necessary to take action and get things done.
- The ability to communicate with others on topics both within and outside their chosen field of specialization.

Most instruction at Carnegie Mellon is focused on fundamentals useful in later learning, rather than on particulars of knowledge and techniques that may soon become obsolete. Advanced courses provide students with the opportunity to refine their skills by applying and exercising the fundamentals they have acquired in earlier courses and by exploring new analytical and creative directions. In a world that has sometimes placed too little emphasis on skill, Carnegie Mellon takes pride in educating students who display excellence in application—students who can do useful things with their learning.

Values, including sensitivity to the feelings, needs and rights of others, are learned in part through example. To this end, the faculty and staff of Carnegie Mellon work to provide a supportive and caring environment that values and respects intellectual, philosophical, personal and cultural diversity. The faculty strive to identify and discuss with their students, both in formal classroom settings and in a variety of informal contexts, their responsibilities as professionals, citizens and human beings, and to teach through example.

The undergraduate programs at Carnegie Mellon are designed to help our students become accomplished professionals who are broadly educated, independent and humane leaders.