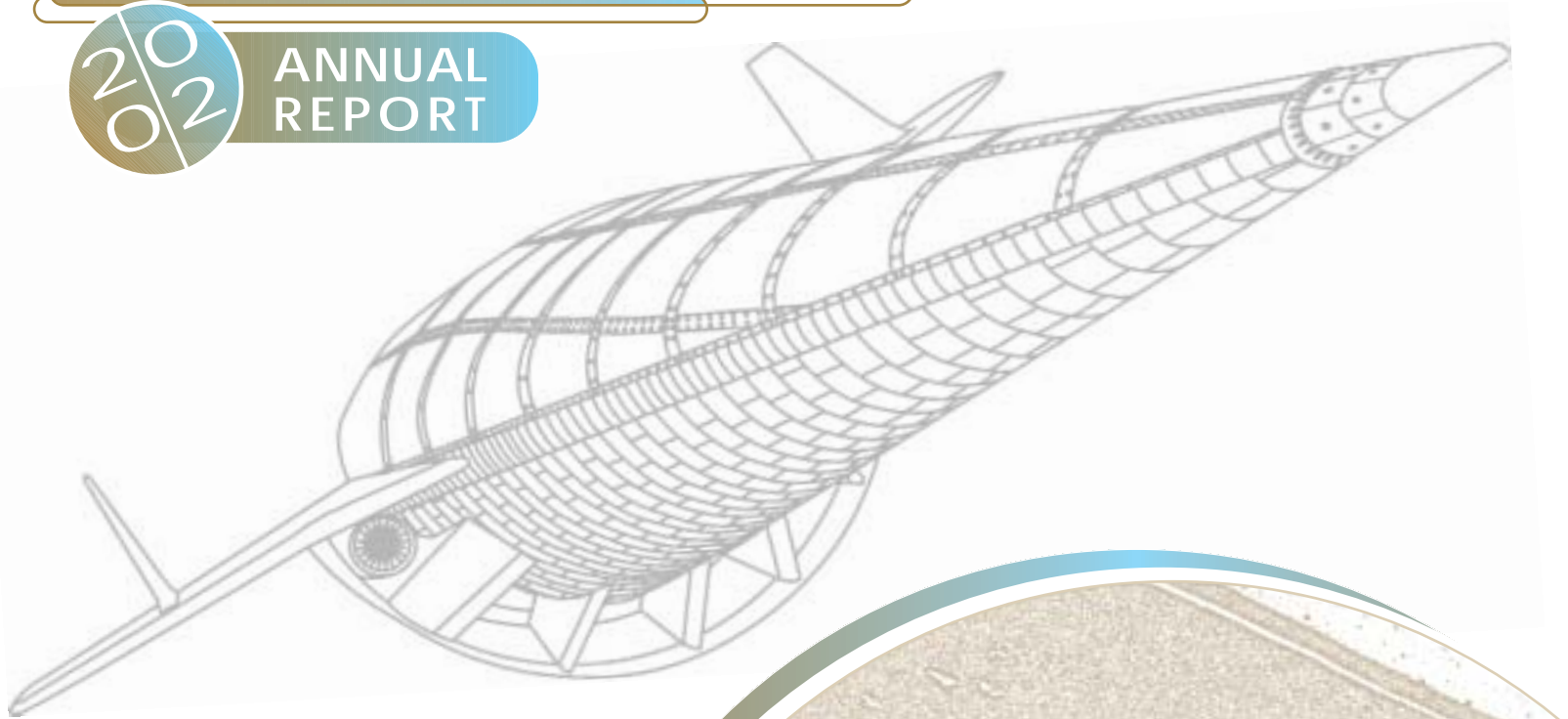


RESEARCH & GRADUATE PROGRAMS

2020

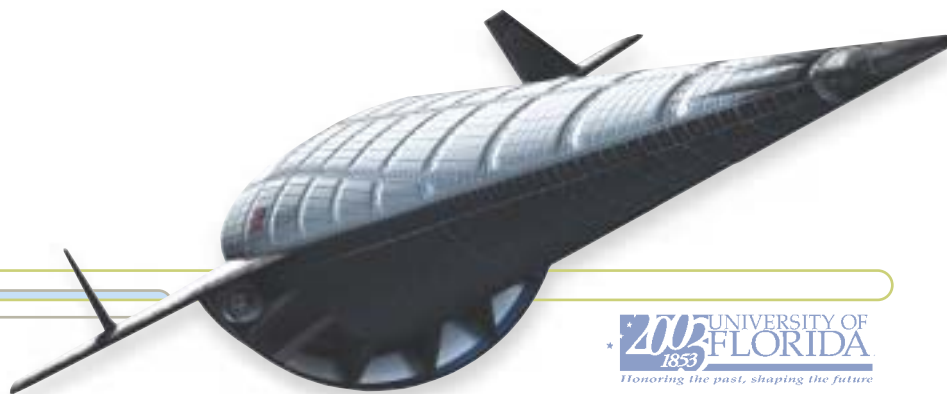
ANNUAL
REPORT



RESEARCH & GRADUATE PROGRAMS

2002

ANNUAL
REPORT



200 UNIVERSITY OF
1853 FLORIDA
Honoring the past, shaping the future

The University of Florida's 150th anniversary this year offers an opportunity to reflect on the important role UF research has played in the emergence of the State of Florida as a technological and economic leader in the 21st century.

Since its inception, the University of Florida has attracted scholars whose curiosity about the world around them has resulted in new inventions and procedures that have benefited the citizens of Florida and beyond in countless ways.

For example, frozen concentrate orange juice was invented at UF's Citrus Research and Education Center in 1948, revolutionizing the citrus industry and making Florida the orange juice capital of the world.

University of Florida aerospace engineers were chosen by NASA last year to lead the development of the next generation of space shuttle, helping to ensure Florida's position as America's spaceport well into the 21st century.

The UF Health Science Center and Shands Hospital have been the site of many major medical advances in Florida, including the first heart, kidney, liver and lung transplants.

University of Florida faculty have long been active participants in the academic research revolution that has occurred in this country since World War II. With the support of the federal government, industry and private foundations, the nation's colleges and universities perform nearly \$30 billion in research and development annually. This includes nearly half of all basic research activity in the United States.

Doing its part, UF research awards have risen steadily over the decades to this year's record \$437.2 million. The National Science Foundation annually ranks universities based on their research funding, and in FY2000 UF's total research expenditures ranked 26th among all universities and 15th among public universities. The university's excellent relationship with industry is reflected in the fact that UF ranked 10th among its peers in that category.

The credit for UF's research success belongs to faculty who aggressively pursue external funding to support research inquiry. This funding facilitates the generation of new knowledge while simultaneously contributing hundreds of millions of dollars to the state's economy.

The success of the sports drink Gatorade is well known, but it is just one of many University of Florida inventions that have been transferred to the marketplace. According to the Association of University Technology Managers, UF's licensing activity, as measured by royalty income, ranked 8th among all universities in 2000.

The university's graduate programs have produced generations of professionals in a wide variety of disciplines, many of whom have risen to positions of prominence in our state, the nation and the world. In addition to the intellectual capital they have brought to Florida, these highly educated alumni have directly contributed to the state's economy through their earning power.

Having grown into an internationally recognized center of learning and research, this institution remains the University of Florida, committed to improving the lives of all Floridians directly, through its research, teaching and service, and indirectly through its positive effects on the state's economy.

Sincerely,

Winfred M. Phillips
Vice President for Research
Dean of the Graduate School



RESEARCH OVERVIEW



Doug Perrine

ANNUAL Report 2002

RESEARCH OVERVIEW

A REPORT BY UF'S OFFICE OF INSTITUTIONAL RESEARCH CONSERVATIVELY ESTIMATES THE IMPACT OF OUT-OF-STATE RESEARCH FUNDING ON FLORIDA'S ECONOMY AT MORE THAN \$550 MILLION ANNUALLY.

The more than \$400 million in research funding the University of Florida received during fiscal year 2001-02 will contribute to Florida's economy many times over the multi-year course of the research projects it funds — supporting jobs, educating undergraduate and graduate students, building and maintaining the university's scientific infrastructure, and contributing to knowledge about things as diverse as diabetes and peanuts.

Research and graduate education has been an integral part of the University of Florida's mission for much of its 150 years. Beginning with the passage in the 1860s of federal land-grant legislation that promoted agricultural research, through the establishment of UF's Health Science Center in the 1950s to the boom in biotechnology and nanoengineering today.

As it enters its 150th year, the University of Florida has become one of the nation's leading research institutions, with total research expenditures comparable to such respected institutions as the University of North Carolina at Chapel Hill, the University of Texas and Yale University.

A report by UF's Office of Institutional Research conservatively estimates the impact of out-of-state research funding on Florida's economy at more than \$550 million annually.

UF is also a player in the state's economic development efforts, using its wealth of new ideas to fuel the creation and growth of more than 65 companies over the last decade, more than 80 percent of which were established in the state.

The six colleges that comprise UF's Health Science

Center accounted for 52 percent of the university's \$437.2 million total in 2001-2002, receiving a record \$225.3 million in contracts and grants, up 14 percent from the previous year. The National Institutes of Health continues to be UF's largest source of research funding at \$103.9 million.

UF faculty in a wide variety of disciplines also had great success in their pursuit of funding from the National Science Foundation. The record \$39.2 million in NSF awards represented a 39 percent increase over 1999-2000.

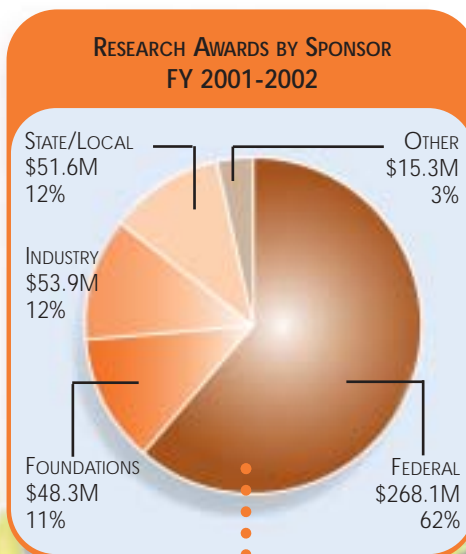
In the wake of September 11th, funding from the Department of Defense was up more than 67 percent over 2001 to \$24.6 million.

Bolstered by a \$15 million grant to develop the next generation of space shuttle, the College of Engineering accounted for more than 15 percent of the university's total with a record \$67.7 million in 2001-02, a 36 percent increase over the previous year.

UF's Institute of Food and Agricultural Sciences (IFAS) also had another record year, earning \$69.5 million in funding in 2001-2002.

While federal funds account for slightly more than 60 percent of UF's total research funding, the university continues to diversify its sources of support. In particular, funding from private foundations rose 17 percent between 2001 and 2002 to \$48.3 million, thanks in part to several large grants, including \$10 million from the Juvenile Diabetes Research Foundation to test Florida newborns for diabetes.

WHILE FEDERAL FUNDS ACCOUNT FOR SLIGHTLY MORE THAN 60 PERCENT OF UF'S TOTAL RESEARCH FUNDING, THE UNIVERSITY CONTINUES TO DIVERSIFY ITS FUNDING SOURCES.



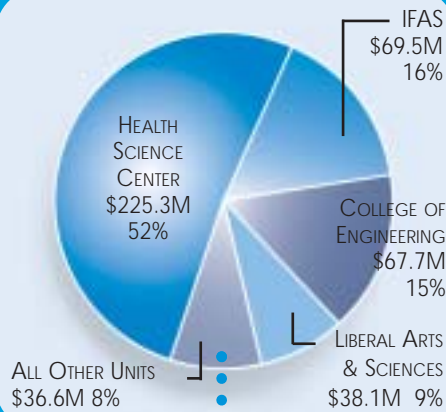
**SUMMARY OF SPONSORED RESEARCH ACTIVITY
FY 2001-2002**

Proposals Submitted	4,405
Grant and Contract Dollars Requested	\$690,962,626
Awards Received	5,608
New Awards Received	2,142
Continuations or Supplementals	3,203
Grant and Contract Dollars Awarded	\$425,154,683
Gifts for Research	\$12,038,937
Total Sponsored Research Funding	\$437,193,620
Grant and Contract Direct Expenditures	\$320,316,183
Recovered Indirect Cost Expenditures	\$48,930,647
Grant and Contract Dollars Expended	\$369,246,830
Projects Active During the Fiscal Year	6,986
Faculty Receiving Awards	1,853
Sponsors	930

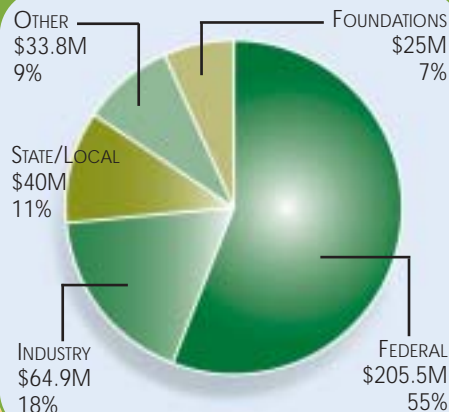
**FEDERAL AWARDS BY AGENCY
TOTAL \$268.1M**

NIH	\$103.9M
NSF	\$39.2M
USDA	\$27.1M
DOD	\$24.6M
HRSA	\$14.8M
Education	\$11.0M
NASA	\$10.9M
Energy	\$8.5M
Veteran's Affairs	\$6.6M
Other Federal	\$4.7M
Commerce	\$3.9M
EPA	\$3.7M
HHS	\$3.4M
DOT	\$3.2M
Other HHS	\$1.8M
US AID	\$0.8M

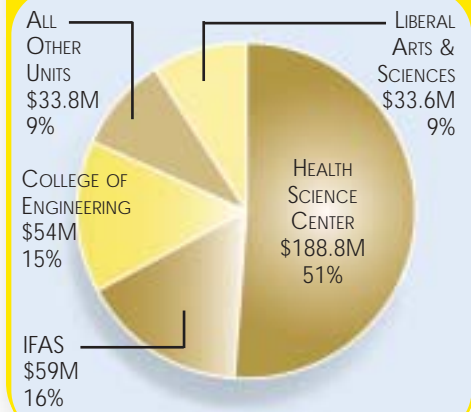
RESEARCH AWARDS BY UNIT FY 2001-2002



RESEARCH EXPENDITURES BY SPONSOR FY 2001-2002



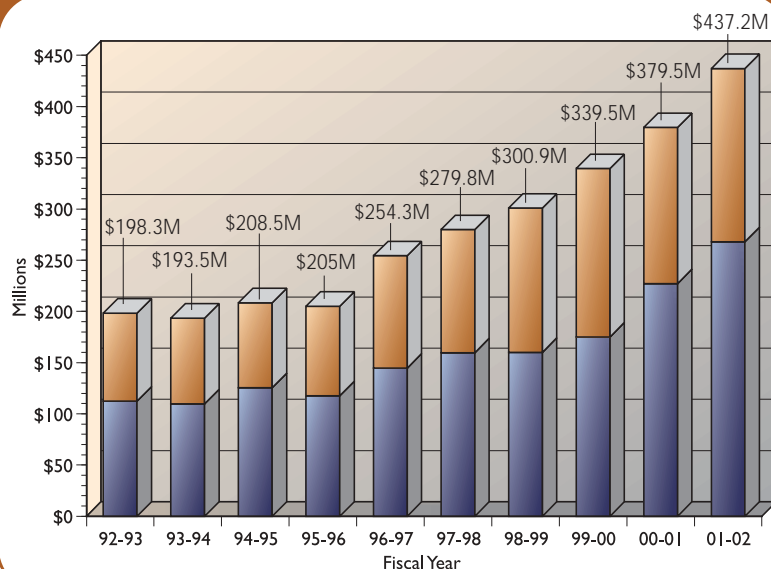
RESEARCH EXPENDITURES BY UNIT FY 2001-2002



ALL OTHER UNITS TOTAL \$36.6M

Education	\$6.5M
Academic Affairs	\$5.5M
Journalism & Communications	\$4.8M
Business Administration	\$4.3M
Centers & Institutes	\$4.2M
Design, Construction & Planning	\$3.7M
Health & Human Performance	\$2.4M
Florida Museum of Natural History	\$2.0M
Research & Graduate Programs	\$1.3M
Instructional Resources	\$1.1M
Law	\$366K
Continuing Education	\$254K
Libraries	\$85K
Fine Arts	\$32K
Student Affairs	\$5K
Natural Resources & Environment	\$4K

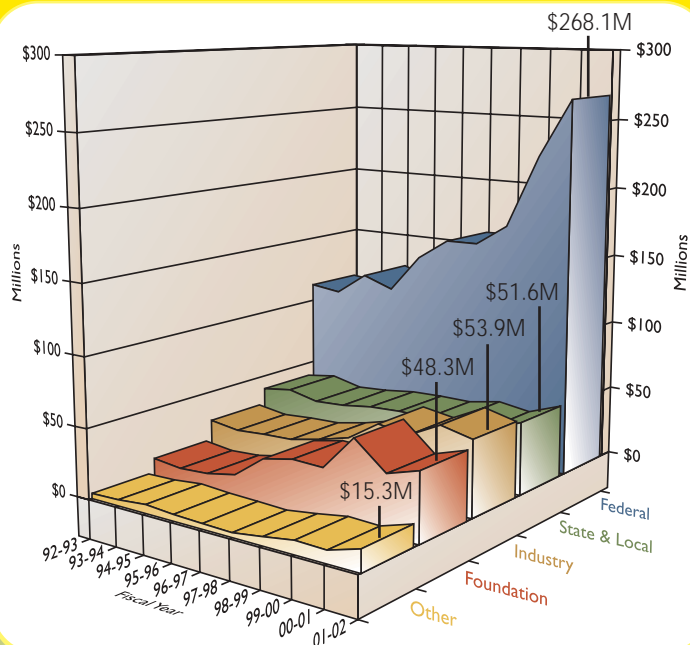
SPONSORED RESEARCH AWARDS FEDERAL/NON-FEDERAL — FY 1993-2002



Much of the 15.2 percent increase in total sponsored research awards can be attributed to an 18.1 percent increase in federal funding, particularly from the National Institutes of Health, the National Science Foundation and the Department of Defense.

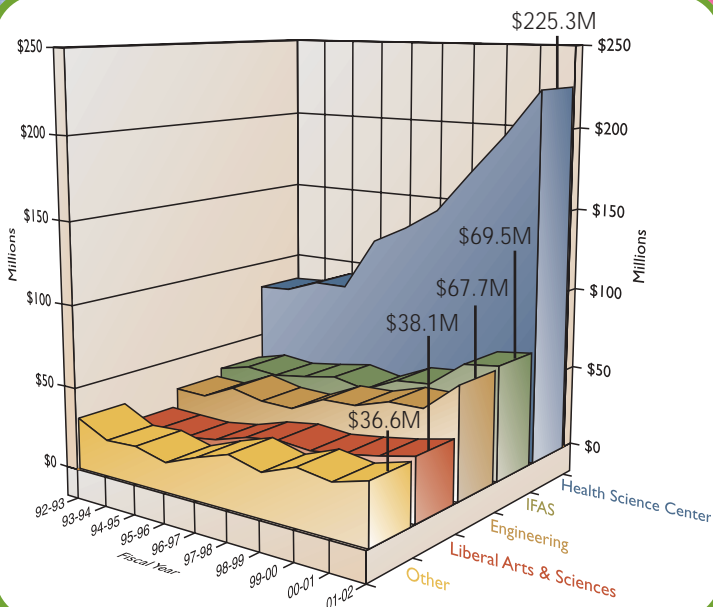
Non-Federal
Federal

RESEARCH AWARDS BY SPONSOR TYPE
FY 1993-2002



An 18.1 percent increase in federal awards to a record \$268.1 million and a 17 percent increase in funding from foundations were responsible for much of UF's overall gain of 15.2 percent. Much of the federal increase can be attributed to an 11.2 percent increase in awards from the National Institutes of Health, from \$93.5 million to \$103.9 million. Awards from the National Science Foundation rose 39 percent to a record \$39.2 million, while post-September 11th funding from the Department of Defense increased 67 percent to \$24.6 million.

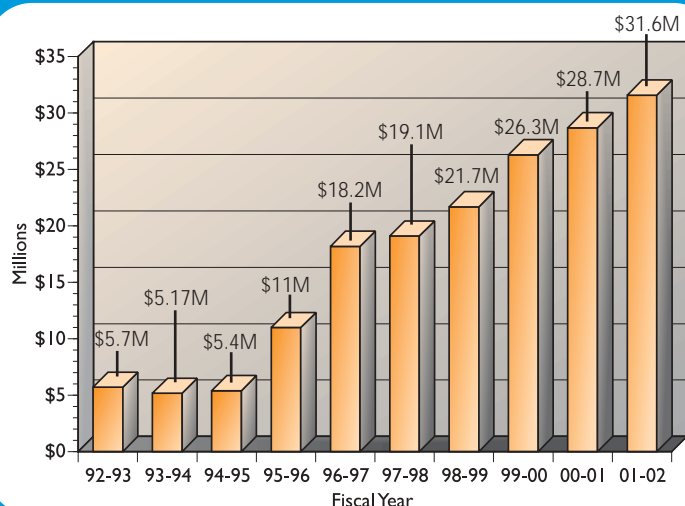
UFRF Economic Imp



RESEARCH AWARDS BY ACADEMIC UNIT
FY 1993-2002

Bolstered by a \$15 million grant from NASA, awards to the College of Engineering increased \$17.4 million (34.6%) to a record \$67.7 million. Awards to the Health Science Center increased \$27.5 million (14%) to a record \$225.3 million, while the College of Liberal Arts and Sciences was up \$4.5 million (13.4%) to a record \$38.1 million. The Institute of Food and Agricultural Sciences was up \$2.6 million (4%) to \$69.5 million.

TECHNOLOGY TRANSFER AND LICENSING 1993-2002



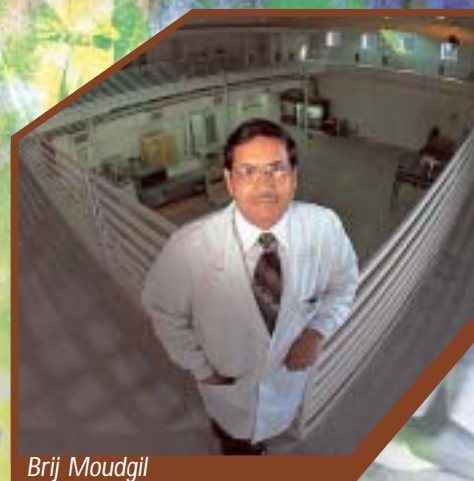
Royalty and licensing income reached a record \$31.6 million in 2001-02, a 2.9 percent increase over the previous year. The glaucoma drug Trusopt and the sports drink Gatorade accounted for about 85 percent of that total.



The University of Florida Research Foundation Professors featured below are among more than 100 faculty members who have been recognized by the foundation for their research efforts. To read biographical sketches about each of these outstanding researchers, go to <http://rgp.ufl.edu/publications/ufrfprofessors/index.html>



Barbara Barletta



Brij Moudgil



Craig Osenberg

PATENTS & LICENSING ACTIVITY FY 1993-2002

Fiscal Year	Invention Disclosures Received	U.S. Patent Applications Filed	U.S. Patents Issued	Licenses Generating Royalties
2001/02	191	185	59	100
2000/01	196	116	68	84
1999/00	166	122	52	63
1998/99	134	106	51	49
1997/98	139	68	51	58
1996/97	103	101	47	61
1995/96	90	61	34	69
1994/95	84	100	24	64
1993/94	75	66	45	20
1992/93	90	41	45	46

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GRADUATE EDUCATION OVERVIEW



Education for the Future

As a producer of both research and researchers, the University of Florida holds an important position in higher education because of the emphasis it places on advanced graduate studies.

Graduate education and research go hand-in-hand, particularly at the doctoral level. The great discoveries of the 21st century will undoubtedly come from the creative efforts of university faculty working closely with bright and motivated graduate students.

Doctoral students contribute in countless ways to the critical teaching and research that go on at Florida. The university commits extensive resources to their education. Faculty time, stipends and tuition, laboratory materials and supplies, and university infrastructure are devoted to their education.

In return, doctoral students broaden the knowledge base of their disciplines, develop new technologies that help to promote economic development and create beauty in many forms.

One-on-one instruction defines the doctoral experience. University of Florida faculty provide the financial, intellectual, social and emotional support needed to ensure that students progress through their academic programs in a timely manner. They recognize that high attrition rates and delays in academic progress waste human and financial resources and demoralize individual students who fail to reach their full potential. These professors serve as advisors, role models, critics, promoters and, finally, as colleagues. In their roles as mentors, they not only help to advance the careers of their students, they also contribute to the betterment of the university, the state and the nation.

Last year, the university initiated the Doctoral Dissertation Advisor/Mentoring Awards to recognize outstanding doctoral dissertation advisors/mentors. From the ranks of committed graduate faculty came five individuals honored for their excellence in mentoring doctoral students. Their stories are presented in this section.

These outstanding mentors, chosen by a committee of peers and students, are representative of the hundreds of faculty at the University of Florida who work to ensure that today's doctoral students become tomorrow's outstanding professors.

GRADUATE EDUCATION AND RESEARCH GO HAND-IN-HAND, PARTICULARLY AT THE DOCTORAL LEVEL. THE GREAT DISCOVERIES OF THE 21ST CENTURY WILL UNDOUBTEDLY COME FROM THE CREATIVE EFFORTS OF UNIVERSITY FACULTY WORKING CLOSELY WITH BRIGHT AND MOTIVATED GRADUATE STUDENTS.

This cluster of 600 young stars known as the "Flame Nebula" because of its fiery appearance was discovered by UF astronomy Professor Elizabeth Lada.



Mercer



Principe



Schmink



Thatcher



Winefordner

Dr. Cecil Mercer
College of Education
Department of Special Education

"If I had to label my mentoring process, I would refer to it as guiding the student along a learning path of 'informed discovery,'" says special education Professor Cecil Mercer.

Since becoming a full professor in 1980, Mercer has helped lead more than 95 Ph.D. students down that path as chair or member of their doctoral committee.

"Every member of my family has remarked about how lucky I am to have a met a faculty member of Cecil Mercer's stature who is willing to work with me on my own interests," wrote one doctoral student. "In my opinion, his example should be a model for many professionals entering higher education on how to help graduate students reach their potential."

Mercer has received the College of Education's Teacher of the Year Award

three times and student evaluations consistently rank him among the best in his department.

Dr. José C. Principe
College of Engineering
Department of Electrical and Computer Engineering

José Principe believes that engineering blends science, art and innovation to explain the external world and invent new technological realities.

"As a scholar, I immensely enjoy working with graduate students to communicate these three facets of engineering," says Principe, who has chaired the committees of 22 doctoral students and 26 master's students since coming to UF in 1985.

"I was strongly drawn toward working with Dr. Principe because he offered an immense flow of ideas and comments," wrote one student. "He was just the right mentor; someone who had more enthusiasm about science and

learning than anyone I met, even more than I had."

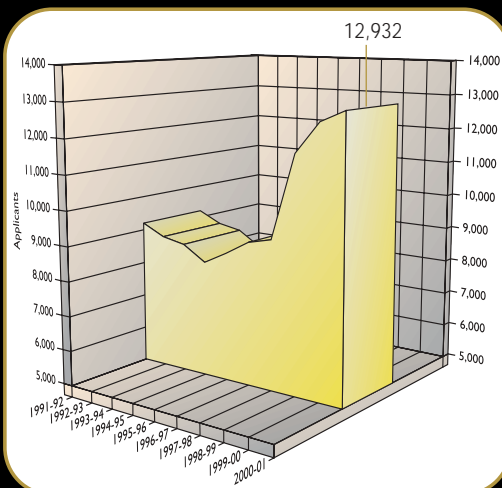
"My vision of graduate instruction leads to a creation of a constructive atmosphere to imprint in the student's intellect the methodology of science, to build the gift of autonomous thinking and eloquence," Principe says. "The core of my mentoring style is to develop a one-to-one, intense communication with a student by sharing my enthusiasm, vision and knowledge in the hope that (s)he will slowly absorb and integrate them in his/her cognitive space."

Dr. Marianne Schmink
College of Liberal Arts and Sciences
Department of Anthropology

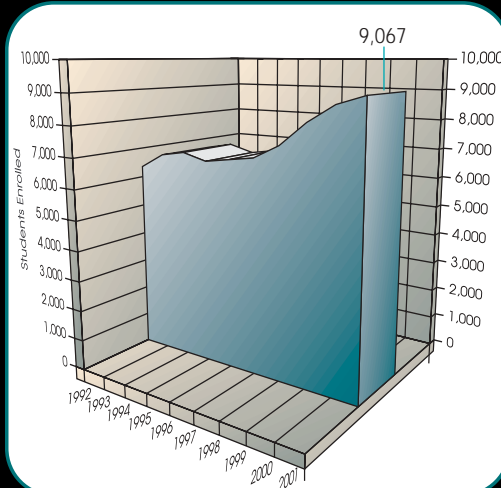
UF anthropology department Chair Allan Burns says Marianne Schmink's internationally recognized work on political ecology and applied conservation in Latin America is at the heart of her mentoring.

"Dr. Schmink's research agenda

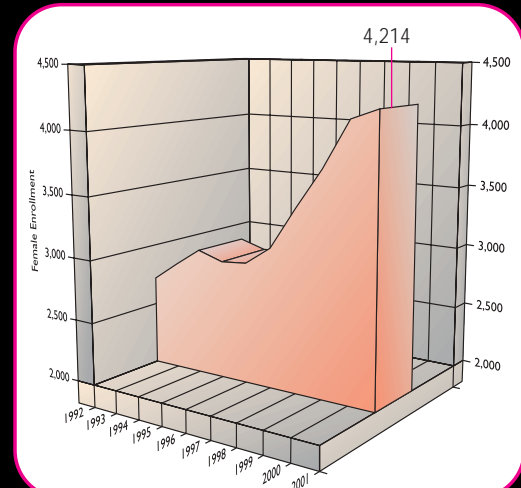
Graduate Education Annual Report 2002



GRADUATE APPLICANTS
1992-2001



GRADUATE ENROLLMENT
FALL 1992-2001



ENROLLMENT OF WOMEN
FALL 1992-2001

translates directly into her mentor and advising skills," Burns writes. "Students who work with her are nominated for and receive extramural funding, they are put in contact with the top ecological anthropologists in the country, and they pursue careers that reflect well on the professional skills and knowledge they acquire under her guidance."

Schmink describes mentoring graduate students as "the most rewarding aspect of my work at UF."

"The key to successful mentoring is helping students to develop their own interests and skills," she says. "Rather than directing them to specific research topics and styles, I draw on my own excitement and commitment to research and provide thoughtful feedback to the interests the students articulate as they develop their research focus and areas of expertise."

Two doctoral students who jointly nominated Schmink say "her commitment to her field of study might be surpassed only by her commitment to her students."

Dr. William W. Thatcher

*Institute of Food and Agricultural Sciences
Department of Animal Sciences*

William Thatcher's former graduate students line up for the opportunity to praise him.

"I consider myself very fortunate to have the opportunity to work not only with a distinguished scientist, but also with someone who I consider the best teacher I have ever had," wrote one student who earned both his master's and doctoral degrees under Thatcher's supervision.

"I feel that I have one of the longest mentoring histories with Dr. Thatcher," added a colleague from the UF College of Veterinary Medicine. "Years after completing my master's and residency program, he is still assisting me to do quality work in research."

Thatcher attributes his success during more than 30 years of mentoring graduate students partly to his belief that "trainees should be equal partners in research."

"A major goal and sense of satisfaction for the mentor is to assist in creating scientific colleagues who are more effective than their mentor," he adds. "This is the way that science will meet the needs of mankind for the 21st century, as it has for centuries in the past."

Dr. James D. Winefordner

*College of Liberal Arts and Sciences
Department of Chemistry*

During his more than 40 years in the UF chemistry department,

Graduate Research Professor Jim Winefordner has directed the research of 144 doctoral students, dozens more than anyone else in the history of analytical chemistry.

And in each of those students he has sought to instill several guiding principles: Research should be fun, ethics is essential, cooperation leads to the best science and research requires hard work and persistence. He also reminds them to be patient and considerate of others; to keep their lives balanced; and to always seek to improve.

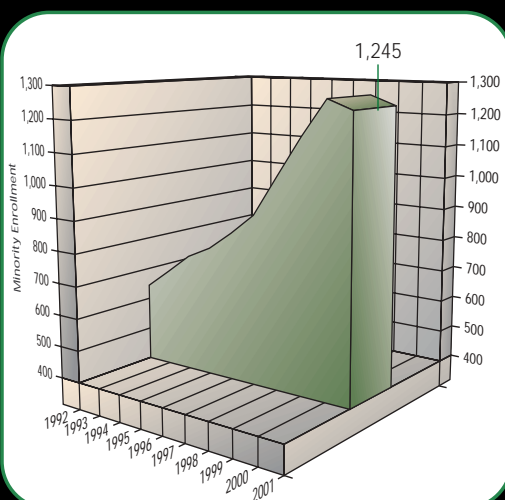
For his part, Winefordner tries to give his students freedom and latitude in their research, and he stresses the importance of oral and written communication.

Lastly, he wants students to know they can talk to him about any matter.

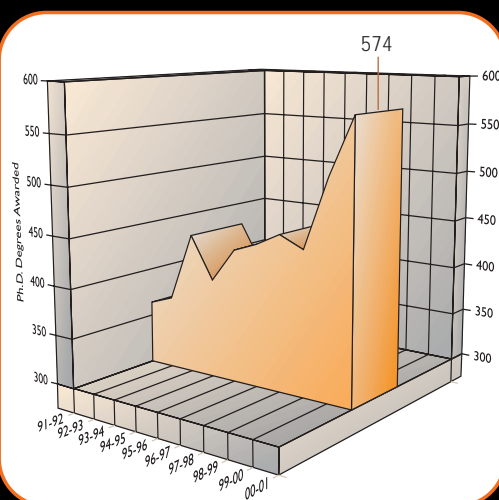
"I've kept an open and friendly office for students to talk about any problems they may have,"

Winefordner says.

One student who is now a research director at Eli Lilly wrote: "The University of Florida has a treasure in the contributions and person of Professor Winefordner. The tenure and extent of his mentoring . . . has impacted doctoral candidates from all over the world."

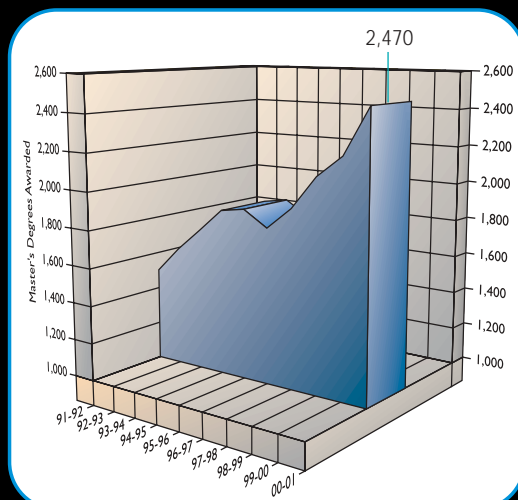


**ENROLLMENT OF MINORITIES
FALL 1992-2001**



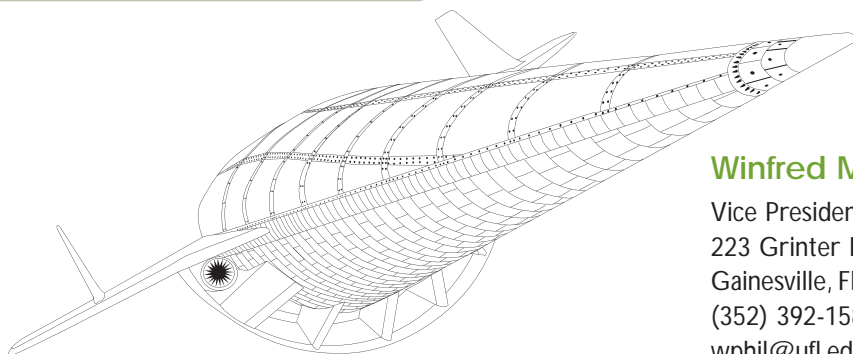
**DOCTORAL DEGREES AWARDED*
1992-2001**

* includes PhD, EDD and AUD.



**MASTER'S DEGREES AWARDED
1992-2001**

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About the Cover: This artist's rendering of what a future reusable launch vehicle might look like incorporates many of the concepts that researchers at the University of Florida-based Institute for Future Space Transport will be studying through a \$15 million grant from NASA. Illustration by Nathan Phail-Liff.

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