



UNIVERSITY OF
FLORIDA

RESEARCH & GRADUATE PROGRAMS

ANNUAL REPORT

2003

RESEARCH & GRADUATE PROGRAMS



ANNUAL REPORT

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Governor Jeb Bush's willingness to commit more than \$300 million to get the Scripps Research Institute to establish a new campus in Palm Beach County highlights the importance he and state economic development leaders place in biomedical research as a vehicle for diversifying Florida's economy.

Scripps will be a valuable addition to Florida's biomedical research community, which is led by the scientists at the University of Florida. More than half of the record \$458 million in research awards UF received last fiscal year were for health-related projects, including \$104 million from the National Institutes of Health.

Just as Scripps has helped spawn new companies around its La Jolla, California campus to bring the technologies it develops to the marketplace, so too has the University of Florida contributed to the Florida economy. Last year, UF received more than \$34 million in royalty and licensing





new

RESEARCH

income, cementing its position among the top 10 universities in the nation in technology transfer. That money is rolled back into the research enterprise, nurturing research that might lead to the next Gatorade sports drink or Trusopt glaucoma drug.

Through initiatives like its Sid Martin Biotechnology Development Incubator, which has been ranked among the nation's most successful by an independent research organization, UF has spun-off more than 65 companies over the past decade, the biggest and most successful of which are now publicly traded growing corporations with many employees and hundreds of millions in revenues.

The success of university-based startups and technology licensing initiatives has helped to grow Florida's biotechnology industry, which currently employs 37,000 people with average wages of more than \$40,000.

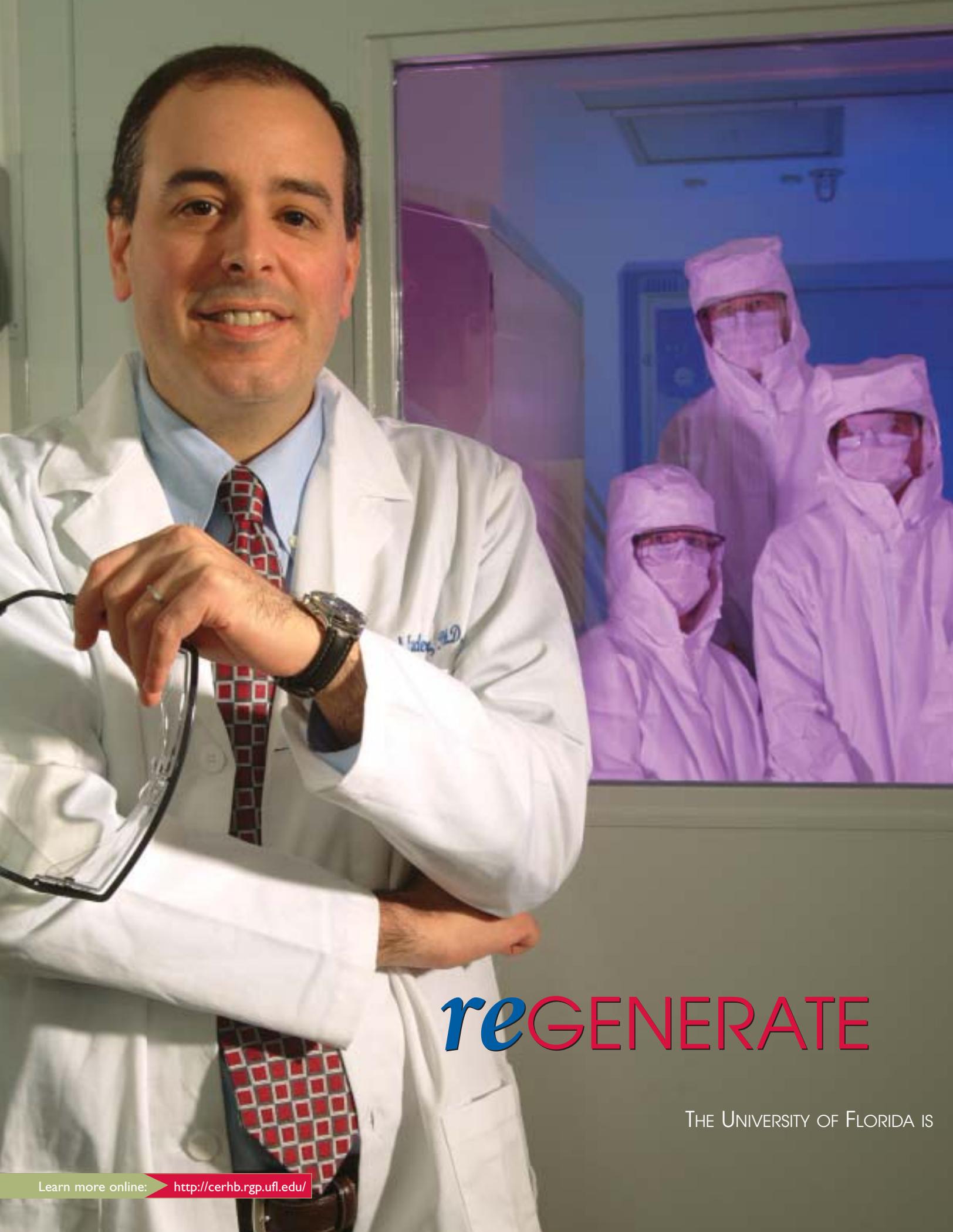
The university is also the state's greatest resource for well-educated individuals who will staff the laboratories and manufacturing facilities of this new economy.

Most important, of course, are the biomedical advances the University of Florida is making. UF researchers are national leaders in gene therapy testing for diseases like cystic fibrosis and diabetes, and the university's adult stem cell research program is unparalleled.

The University of Florida welcomes the Scripps Research Institute to our state, where together we can continue to pursue the medical miracles of the 21st century and to promote a diverse economy where sciences thrives along with tourism and agriculture.

Sincerely,

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



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THE UNIVERSITY OF FLORIDA IS

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RESEARCH OVERVIEW



Florida has experienced several well-defined eras of economic development in its history, from Henry Flagler's railroad to the Kennedy Space Center to Walt Disney World. Now, the state is entering a new era focused on biotechnology, and the University of Florida is a prominent participant.

The more than \$250 million in health-related research awards UF received in fiscal year 2002-03 represents a significant portion of the state's intellectual and economic commitment to biotech. Hundreds of researchers at UF's McKnight Brain Institute, Genetics Institute and throughout the six colleges of the Health Science Center compete successfully against their peers around the country for money to study everything from adult stem cells to gene therapy.

Success in this arena uniquely positioned the University of Florida to pursue a new Center of Excellence for Regenerative Health Biotechnology last year through the Florida Technology Development Act, which authorized the use of \$30 million to fund Centers of Excellence at Florida universities.

Although the \$10 million state award is not reflected in this report, work on the center is already well under way. The university has committed another \$10 million to purchase a building to house the center and to hire five new world-class faculty members in this exciting field.

Florida's robust and growing biotechnology industry also contributed to the Scripps Research Institute's decision to establish a second campus in Palm Beach County. Scripps Florida is expected to be a significant partner in biomedical research with Florida's universities. The natural synergy between this private, non-profit institute and the state's universities has the potential to both foster biomedical breakthroughs and speed their delivery to doctors and patients.

HOME TO A NEW CENTER OF EXCELLENCE FOR REGENERATIVE HEALTH BIOTECHNOLOGY



Ray Carson



Diversifying Florida's economy can only help improve opportunities for UF's graduate degree recipients. Florida needs the recipients of the more than 600 doctoral degrees and 2,700 master's degrees the university awarded last year to stay and contribute to the state's economy, and providing more high-tech, well-paying jobs will be a powerful draw.

Although the UF Health Science Center received 55 percent of the university's record \$458.1 million in research funding in fiscal year 2002-03, the other major units continue to generate significant awards, demonstrating the comprehensiveness that has been a hallmark of the University of Florida research enterprise.

The Institute of Food and Agricultural Sciences brought in \$65.3 million, the College of Engineering received \$60.9 million and the College of Liberal Arts and Sciences received \$44.3 million.

The National Institutes of Health continues to be UF's largest funding source, awarding \$104.4 million in 2002-03, followed by the National Science Foundation at \$40.7 million, the U.S. Department of Agriculture at \$26.4 million and the Department of Defense at \$24.2 million.

Federal funds account for 63 percent, or \$289.3 million, of UF's total, with the rest about evenly divided between state, industry and private foundation. Funding from private foundations continues to grow as a source of research funds, reaching a record \$51.3 million in 2002-03.

The new technology-based economy emphasizes rapid progression from the laboratory to the marketplace, and the University of Florida continues to be a national leader in this area. Royalty and licensing income reached a record \$34.4 million last fiscal year thanks to aggressive disclosure and marketing efforts.

Donna Duckworth, Ph.D., is professor of molecular genetics and microbiology.

UNIVERSITY OF FLORIDA RESEARCHERS ARE WORKING TO RID OYSTERS OF DEADLY BACTERIA



resource

SUMMARY OF SPONSORED RESEARCH ACTIVITY

Proposals Submitted	4,199
Grant and Contract Dollars Requested	\$769,113,135
Awards Received	5,721
New Awards Received	2,426
Continuations or Supplementals	3,295
Grant and Contract Dollars Awarded	\$446,516,671
Gifts for Research	\$11,588,632
Total Sponsored Research Funding	\$458,105,303
Grant and Contract Direct Expenditures	\$356,579,391
Recovered Indirect Cost Expenditures	\$55,393,124
Grant and Contract Dollars Expended	\$411,972,515
Projects Active During the Fiscal Year	6,965
Faculty Receiving Awards	1,842
Sponsors	918

RESEARCH AWARDS BY SPONSOR



A	Federal	\$289.3M	63%
B	State & Local	\$43.8M	10%
C	Industry	\$54.4M	12%
D	Foundations	\$51.3M	11%
E	Other	\$19.3M	4%

A FEDERAL AWARDS BY AGENCY TOTAL \$289.3M

NIH	\$104.4M
NSF	\$40.7M
USDA	\$26.4M
DOD	\$24.2M
HHS	\$23.4M
HRSA	\$11.5M
Education	\$11.3M
NASA	\$11.0M
Energy	\$9.7M
Veteran's Affairs	\$6.5M
Commerce	\$5.6M
DOT	\$3.6M
Interior	\$3.0M
EPA	\$2.8M
US AID	\$2.1M
Other HHS	\$1.8M
Other Federal	\$1.3M

R E G E N E R A T E
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R E S O U R C E
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RESEARCH AWARDS BY UNIT



A	Health Science Center	\$251.0M	55%
B	IFAS	\$65.3M	14%
C	College of Engineering	\$60.9M	13%
D	Liberal Arts & Sciences	\$44.3M	10%
E	All Other Units	\$36.6M	8%

RESEARCH EXPENDITURES BY SPONSOR



A	Federal	\$236.9M	58%
B	State & Local	\$40.6M	10%
C	Industry	\$63.8M	15%
D	Foundations	\$28.8M	7%
E	Other	\$41.9M	10%

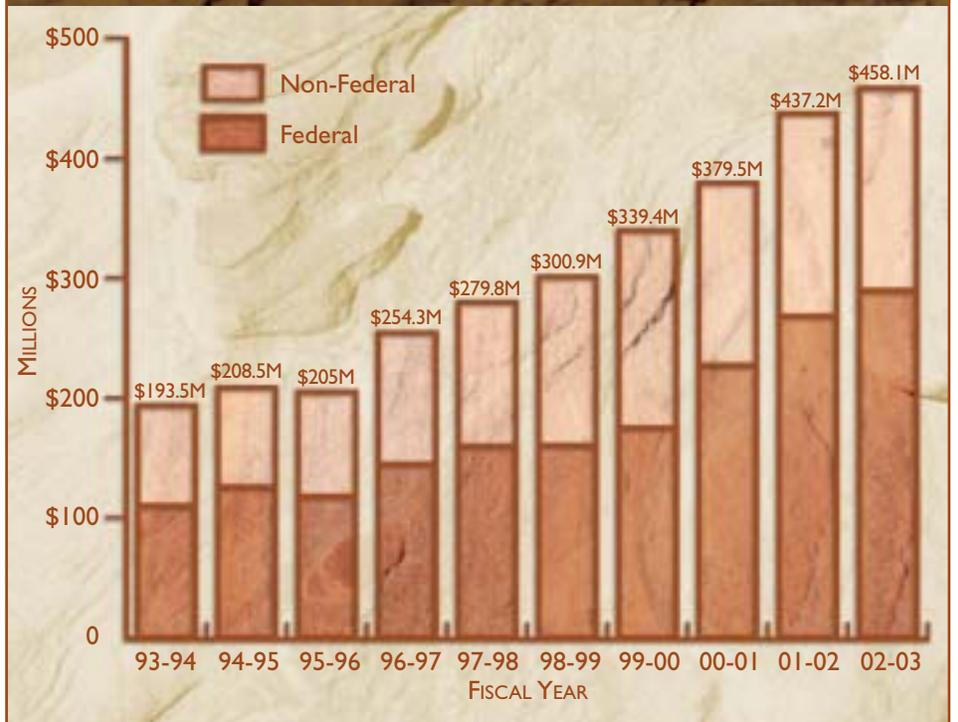
RESEARCH EXPENDITURES BY UNIT



A	Health Science Center	\$208.2M	50%
B	IFAS	\$62.3M	15%
C	College of Engineering	\$61.5M	15%
D	Liberal Arts & Sciences	\$36.3M	9%
E	All Other Units	\$43.7M	11%

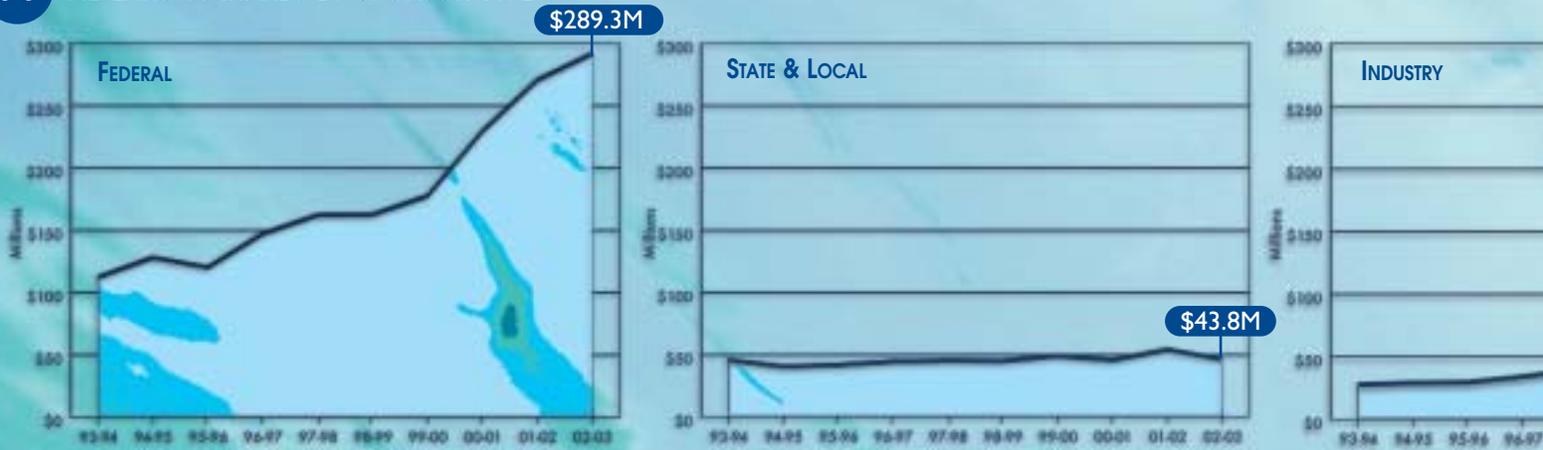
E ALL OTHER UNITS	TOTAL \$36.6M
Education	\$5.4M
Academic Affairs	\$5.1M
Centers & Institutes	\$5.0M
Florida Museum of Natural History	\$4.9M
Business Administration	\$4.4M
Health & Human Performance	\$3.1M
Design, Construction & Planning	\$2.8M
Research & Graduate Programs	\$2.3M
Journalism & Communications	\$2.2M
Natural Resources & Environment	\$579K
Academic Technology	\$265K
Continuing Education	\$258K
Libraries	\$158K
Law	\$98K
Fine Arts	\$46K

SPONSORED RESEARCH AWARDS FEDERAL/NON-FEDERAL TEN-YEAR COMPARISON



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A RESEARCH AWARDS BY SPONSOR TYPE



B RESEARCH AWARDS BY ACADEMIC UNIT



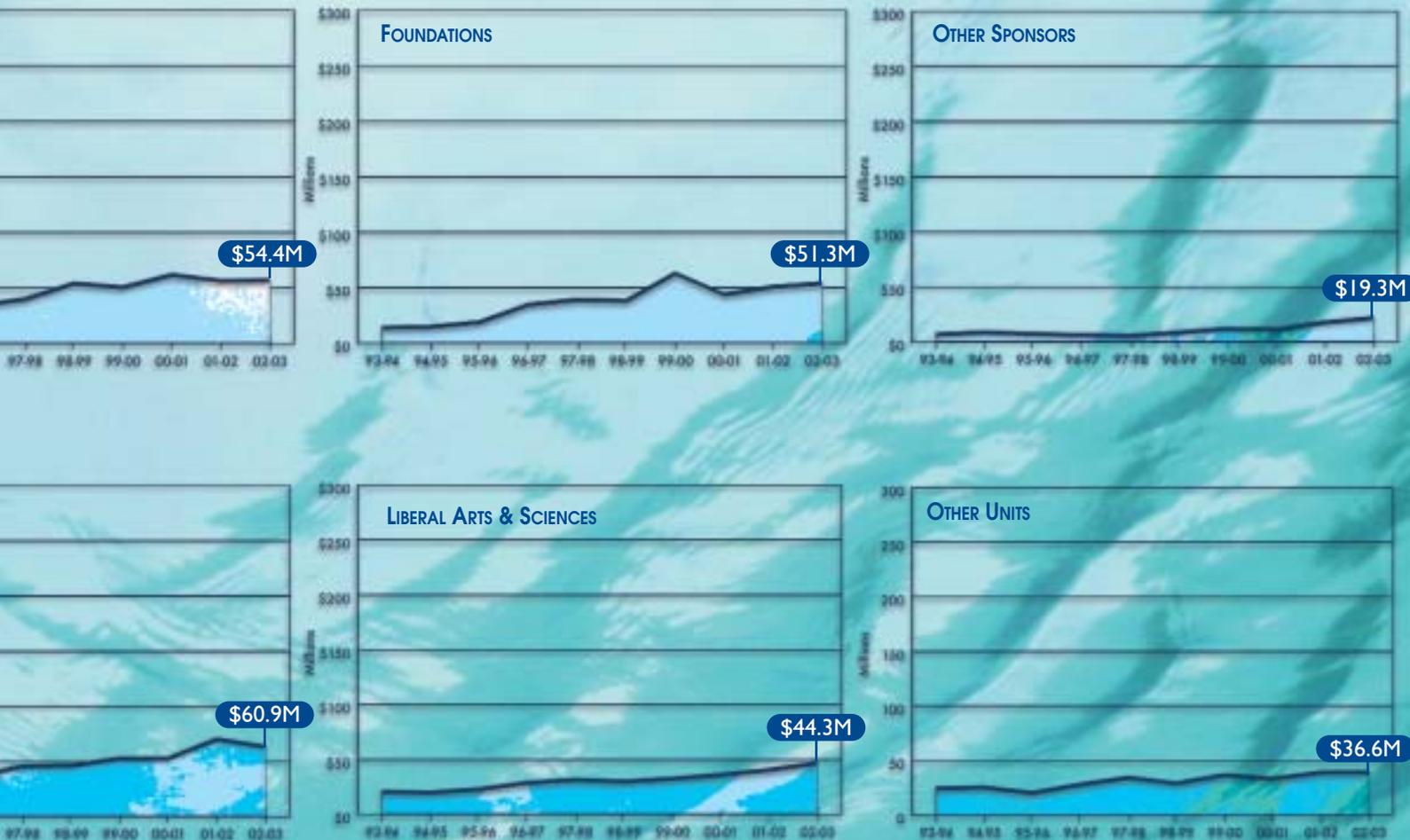
A Much of the 4.8 percent increase in total sponsored research awards can be attributed to an 8 percent increase in federal funding. The National Institutes of Health and the National Science Foundation account for about 50 percent of total federal funding.

An 8 percent increase in federal awards to a record \$289.3 million and a 6.2 percent increase in funding from foundations to a record \$51.3 million were responsible for much of UF's overall gain of 4.8 percent. Awards from the National Institutes of Health reached a record \$104.4 million while awards from the National Science Foundation rose 3.8 percent to a record \$40.7 million.

B The College of Liberal Arts and Sciences recorded the most significant increase in 2002-03, climbing 16.3 percent to a record \$44.3 million. Awards to the Health Science Center increased \$25.7 million (11.4%) to a record \$251 million.

C Royalty and licensing income reached a record \$34.4 million in 2002-03, a 7.8 percent increase over the previous year. The Office of Technology Licensing secured 264 invention disclosures from faculty members in 2003-03, a 90-percent increase over the previous year. OTL has executed 112 licenses in the last 2 years, more than the previous 6 years combined.

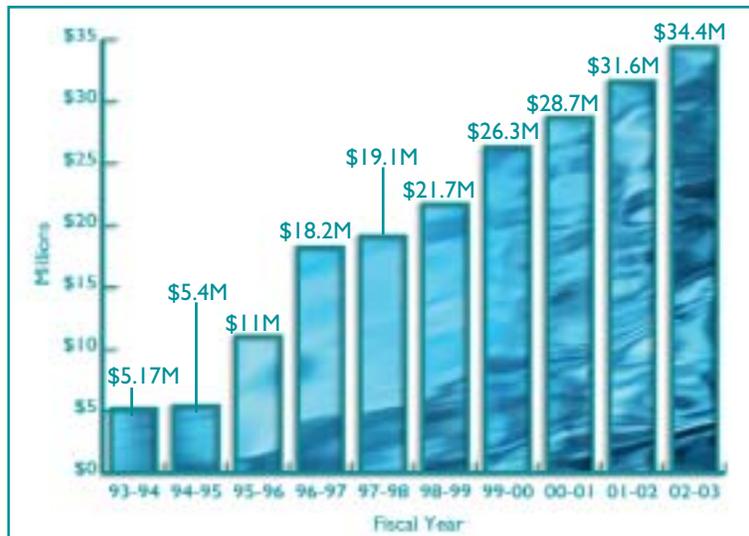
10-Year Comparison 1994-2003



C

TECHNOLOGY TRANSFER AND LICENSING

PATENT AND LICENSING ACTIVITY



Fiscal Year	Invention Disclosures Received	U.S. Patent Applications Filed	U.S. Patents Issued	Licenses Generating Income
2002/03	264	114	52	119
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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THE UNIVERSITY OF FLORIDA'S GRADUATE STUDENTS ARE THE NEXT



Learn more online:



GENERATION OF SCIENTISTS, TEACHERS AND LEADERS IN GOVERNMENT AND INDUSTRY

G R A D U A T E E D U C A T I O N O V E R V I E W



Transitioning Florida's economy toward a greater emphasis on clean, well-paying industries like biotechnology requires a critical mass of highly educated people to staff the research laboratories and manufacturing facilities these industries are expected to spawn.

At a time when American leadership and prosperity depend increasingly on the creation and use of knowledge, graduate education provides our state and nation with an important competitive advantage. Our unique system of combining graduate education with cutting-edge science strengthens American research, while also producing the next generation of scientists, teachers and leaders in government and industry.

The University of Florida is one of the nation's leading contributors to this system. During the 2002-2003 academic year, UF awarded 607 Ph.D. and other doctoral degrees and 2,752 master's degrees, placing it among the top 10 institutions in the Association of American Universities, the 62 leading research universities which produce more than 50 percent of the nation's Ph.D.s.

Research universities provide the breeding ground for new ideas, the environment for the effective transmission of knowledge and skills, and the repository of the world's knowledge. Teaching students to imagine the future will help create the industries that will dominate this century — biotechnology, microelectronics, materials industries, telecommunications, robotics, computer hardware and software and many others.



Jeff Grage



A recent national study concluded that two-thirds of all advanced degree holders remain in the state where they received their degrees — in Florida this number exceeds 70 percent — contributing to the economy through their earning power. The average new bachelor's degree recipient working in Florida earns \$35,200, while new master's and doctoral degree holders earn \$45,780 and \$57,270, respectively. Comparing these salary differences and applying them to UF's 2,752 master's recipients and 607 doctoral recipients and multiplying the result by the standard 2.0 multiplier for personal income, the one-year incremental contribution to the Florida economy of doctoral graduates is \$18.8 million and \$40.8 million for master's graduates.

Advanced degree holders are an important component of the state's workforce in other ways. As researchers in the private sector, they attract funds from the federal government, foundations and other non-state funding agencies to support their research. These funds have a leveraging advantage by supporting a technical workforce that assists with the research and by purchasing services and products from vendors in the state.

Based on figures from the U.S. Department of Commerce and the National Science Foundation, UF's \$411.5 million in research expenditures created an estimated 15,000 jobs in 2003. The University of Florida has ranked among the top 30 in total R&D expenditures of the more than 600 institutions surveyed by NSF.

The University of Florida's reputation as a major research institute has experienced significant improvement in the past decade thanks, in part, to its increased production of doctoral degrees and increased external funding.

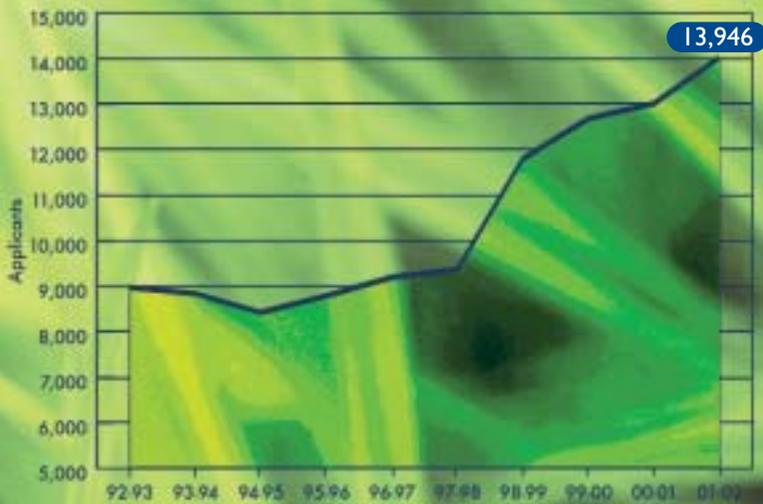
Doctoral degree-granting institutions are training the next generation of teachers and researchers. Our children and our children's children will receive high-quality undergraduate education because of the commitment the State of Florida makes today to graduate education.

Zoology doctoral student Ashley Morris was a recipient of the prestigious Canon National Parks Science Scholarship for her research on the effects of global warming on forest range and diversity.

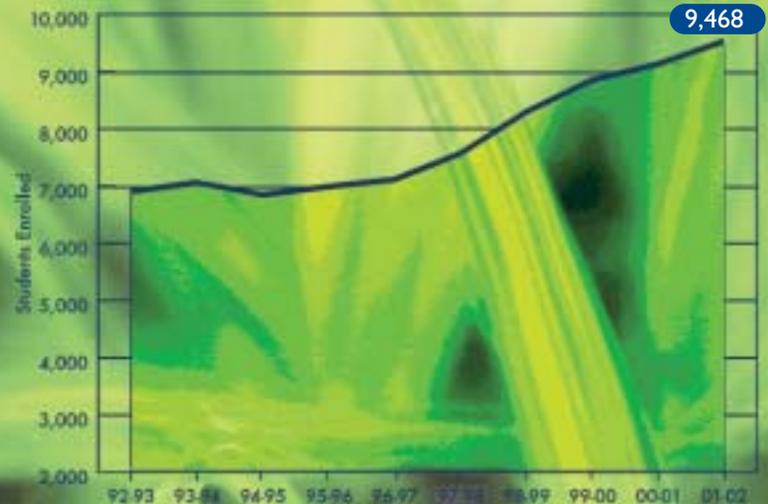
UNIVERSITY OF FLORIDA GRADUATE ENROLLMENT REACHED A RECORD 9,468 IN 2003



A GRADUATE APPLICANTS — 1993-2002



B GRADUATE ENROLLMENT — 1993-2002

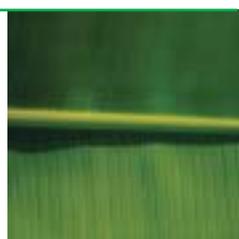


A The university continues to aggressively recruit top graduate students. Applications to UF graduate programs increased 7.8 percent last year to 13,946.

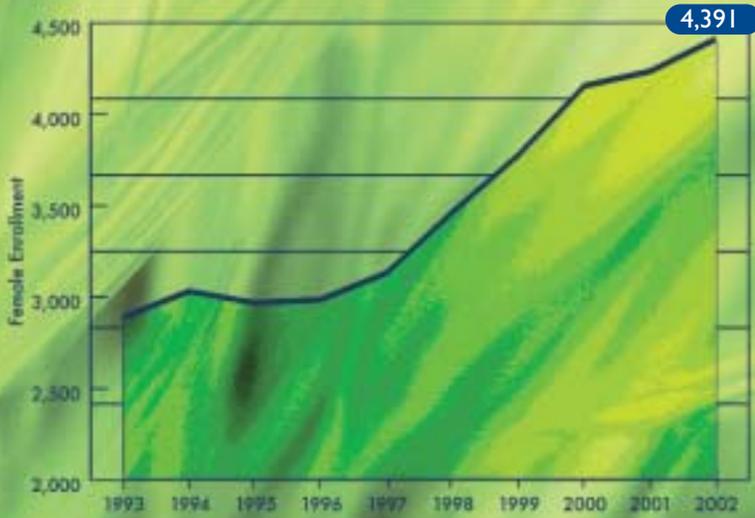
B Overall Fall 2002 enrollment increased 4.2 percent to 9,468 students, spurred in part by an 8.6 percent increase in minority enrollment, which totaled 1,352. The number of women enrolled in Graduate School increased 4.2 percent to 4,391, or 46.4 percent of the total graduate student population.

C Five years into UF's initiative to increase graduate enrollment, the results are now being reflected in the number of degrees awarded. Last year, the university awarded 607 doctoral degrees, including Ph.D. Ed.D and Au.D, a 5.7 percent increase over the previous year. Master's degrees awarded rose 11.4 percent to 2,752.

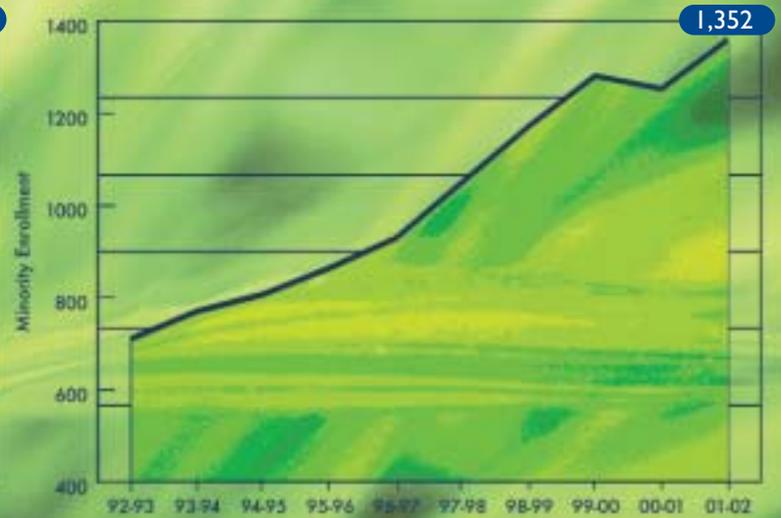
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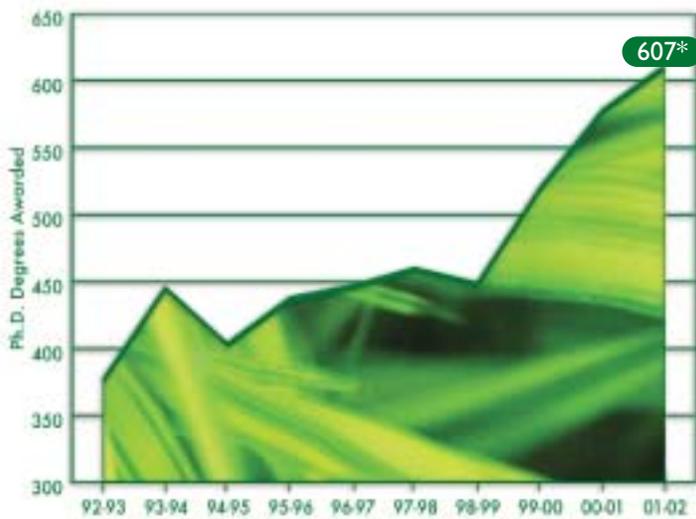
ENROLLMENT OF WOMEN — 1993-2002



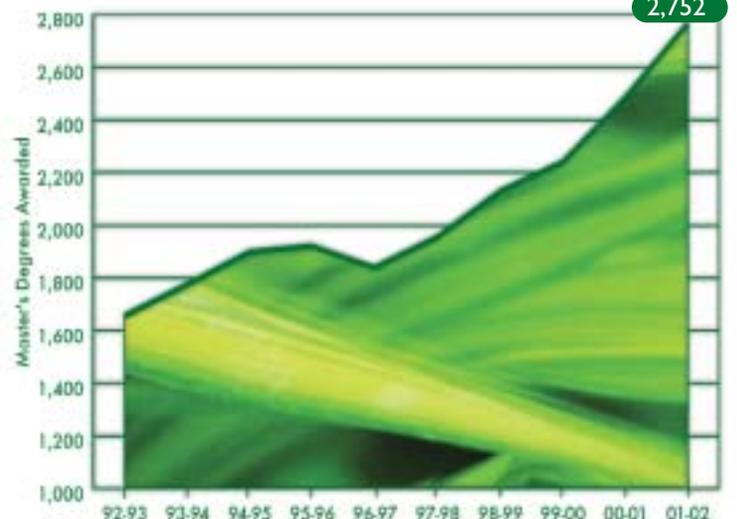
ENROLLMENT OF MINORITIES — 1993-2002



C DOCTORAL DEGREES AWARDED — 1993-2002



MASTER'S DEGREES AWARDED — 1993-2002



* includes Ph.D., Ed.D., and Au.D.

DOCTORAL DISSERTATION/MENTORING AWARD



Patricia Ashton



Bill Chamberlin



Peter Hansen



Carolyn Tucker

EACH YEAR THE GRADUATE SCHOOL RECOGNIZES FIVE FACULTY MEMBERS FOR EXCELLENCE IN MENTORING DOCTORAL STUDENTS WITH THE DOCTORAL DISSERTATION/MENTORING AWARD.

A COMMITTEE OF FACULTY AND STUDENTS CHOSE THIS YEAR'S RECIPIENTS FROM AMONG MORE THAN 200 ELIGIBLE FACULTY ACROSS CAMPUS. NOMINEES WERE REQUIRED TO HAVE SERVED AS A COMMITTEE CHAIR OR CO-CHAIR FOR AT LEAST ONE DOCTORAL OR MFA STUDENT IN THE LAST YEAR AND AT LEAST THREE IN THE PAST FIVE YEARS.

EACH OF THE FACULTY MEMBERS RECEIVED \$2,000, PLUS AN ADDITIONAL \$1,000 TO SUPPORT GRADUATE STUDENTS.

"The mentoring relationship between adviser and doctoral student is one of the most challenging and rewarding experiences of teaching," says educational psychology Professor **Patricia Ashton**. "When it is successful, the student becomes peer and often teacher."

"Dr. Ashton's mentoring enabled me to win the Graduate Student Teaching Award," wrote one doctoral candidate. "She taught me how to challenge my students and advance their thinking. I cannot praise her highly enough for her modeling of exemplary instruction."

As editor of two major journals in education, Ashton has provided extensive editorial support to graduate students who submitted papers to those journals. Of the 19

Ph.D. students to graduate under her supervision, 13 have become successful university faculty members and two have gone on to become deans.

"I tailor my mentoring strategies to match students' career goals," Ashton says. "I strive for doctoral students to develop a professional identity committed to advancing research and teaching in educational psychology."

Ashton has served as Director of the Program in Educational Psychology since 1997. She recently wrote a grant application to the Carnegie Foundation for participation in a program to improve doctoral education in educational psychology.

Bill Chamberlin's contributions to UF go beyond his commitment to mentoring and advising doctoral students. He holds the important distinction of developing the academic field of media law.

"In developing the media law program, Dr. Chamberlin has created an invaluable experience for UF graduate students," says one colleague. "His excellent leadership is one of the reasons UF is so successful at attracting doctoral students from national and international venues."

One doctoral student wrote: "Dr. Chamberlin is the reason I came to UF. He is nationally recognized for helping students excel in both their research and teaching."

"The doctoral experience takes enough fortitude, energy, and commitment from students that they need to know someone will care and help," says Chamberlin. "My



Betram Wyatt-Brown

advisees know I am always available to help them.”

Since coming to UF in 1987 as the Joseph L. Brechner Eminent Scholar in Journalism, Chamberlin has directed 16 master’s students and 12 doctoral candidates, all of whom completed their studies. Many of his students now hold faculty positions at major doctoral universities, including Penn State and the University of Miami.

Peter Hansen believes that science is a noble enterprise and that students should be focused on the discovery of knowledge rather than career advancement.

“Values about science are transmitted by making them the center of a mentor’s approach to his work,” says Hansen, who has served as committee chair for 12 doctoral students. “Every effort should be made to nurture the curiosity and love of learning that many students bring to a scientific vocation.”

Hansen joined the UF Department of Animal Sciences in 1986, becoming full professor in 1994. His research in environmental physiology and reproductive immunology has yielded nearly 150 publications.

“Dr. Hansen’s research programs are the result of his highly successfully methods of mentoring graduate students,” wrote one colleague. “His approach to scientific education applies all of his experience as a researcher to help his students overcome difficulties with research projects.”

One doctoral student wrote: “Dr. Hansen is an excellent mentor and devotes much of his time to students. Whether inside or outside the classroom, he is a dedicated graduate educator.”

“My mentoring style is perhaps best described as empowerment oriented, culturally sensitive, holistic, compassionate, and excellence driven,” says psychology Professor **Carolyn Tucker**.

Tucker has created numerous opportunities for students to engage in culturally sensitive research, including

programs on culturally sensitive healthcare and empowerment education of at-risk youth.

“Dr. Tucker makes it easy for doctoral students to care about science and the real-world concerns that her research programs seek to understand and improve,” wrote one colleague. “Her doctoral advisees are centrally and critically involved in all phases of her research programs.”

“Dr. Tucker invites students to be involved in all facets of her professional life,” says one doctoral student. “By the time I graduated from UF, I had helped her teach classes, administer an after-school education program, and deliver professional workshops at national conferences. She gives all of her time and spirit to students and the community.”

During her time at UF, Tucker has chaired 27 doctoral dissertations and received several awards, including the Board of Regents Distinguished Community Service Award. Student evaluations consistently rank her among the best in the psychology department.

During his 19 years as the Richard J. Milbauer Professor of History, **Betram Wyatt-Brown** has always encouraged his students to branch out and be innovative with their research.

“A mentor and a student should have a rapport that is neither intimate nor intimidating,” says Wyatt-Brown, who is particularly interested in Civil War history. “A major goal of mentoring should be to encourage self-confidence rather than condemn mistakes.”

“Dr. Wyatt-Brown has taught me that while as scholars we might tend to become specialists in a particular subject, we can still think broadly and engage audiences beyond our fields, that this will make us more valuable contributors to the university community,” wrote one doctoral student. “He has been everything I could ask for of a mentor.”

Students once under Wyatt-Brown’s direction now enjoy rich publication records, producing well-received studies with, among others, Oxford University Press and the University of Notre Dame Press. Many of his 20 doctoral students now hold respectable positions at institutions of higher learning.

One student who is now an associate professor at John Carroll University wrote: “Dr. Wyatt-Brown’s encouragement of creativity has founded a community of scholars that looks back to the UF history department with gratitude. Dr. Wyatt-Brown deserves the recognition of UF!”

reSPOND

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