Graduate students sweep national fellowship competition

MSU tops select list of research institutions by earning record number of awards in 1990’s

There are many ways in which MSU graduate students distinguish themselves as scholars-in-the-making. One highly visible way in which students can mark their success is by winning national awards and fellowships. One recent success story is MSU’s seven-year sweep of a highly competitive national fellowship competition.

From 1992-1998, MSU graduate students in international studies and foreign languages won a record number of International Predissertation Fellowship Program (IPFP) awards, placing the University at the top of a list of 23 select research universities whose students are eligible to compete for the prestigious fellowships.

The competition and its awards are sponsored by the Social Science Research Council (SSRC) and the American Council of Learned Societies (ACLS), with funding from the Ford Foundation. MSU out-ranked schools such as Stanford, Harvard, University of Michigan, Princeton, and Yale when its students received 25 out of a total of 251 awards during the seven-year period. The other 22 institutions averaged a total of 10 awards during this same period. Of all MSU graduate students applying for the fellowships, 42% received awards, compared to an average of 24% of all other universities’ applicants.

These joint SSRC/ACLS fellowships benefit both scholars and the international regions that are the subject of students’ research interests. The awards are intended to encourage students to focus their dissertation proposal in Africa, Central Asia and the Caucasus, China, Latin America and the Caribbean, the Near and Middle East, South Asia, and Southeast Asia.

According to the SSRC, the program is “designed to increase the flow of talented graduate students in the social sciences into research and teaching careers oriented to the developing world and to encourage the pursuit of context-sensitive social science.”

Dr. David Wiley, director of the MSU African Studies Center and professor of sociology, explains that the fellowships allow students to develop the details of their dissertation proposal while studying and working in their chosen locale, immerse them in foreign languages needed for research, and provide them with the opportunity to make valuable contacts with experts and informants abroad that may later assist them in their dissertation project.

Wiley commented, “These extraordinary fellowships have assisted our students to explore research on the environmental change and the fishing peoples on Lake Victoria, social change in Ethiopia, democratization in Zambia, health and medical traditions in Senegal, land reform in Zimbabwe, folk traditions in Mexico, and many other topics and countries.

“With this immersion in the local languages, cultures, and liaisons with foreign scholars, they have built a foundation for superb dissertation research. With the IPFP and additional national research awards that they win, they are launching successful careers as the next generation of faculty for American research universities – and, they are at home here and abroad in comprehending our increasingly global economy, society, and polity.”

Dawne Curry, a doctoral candidate in the MSU Department of History, was awarded an IPFP fellowship in 1997. The purpose of Dawne’s research is to examine the protest activities of a multi-ethnic, heterogeneous and multi-lingual Black and colored township community in Alexandra, South Africa in order to analyze domination and resistance as mediated by age, ethnicity, gender and class. The fellowship funded Dawne’s cultural
immersion and language training in South Africa from October 1997 to August 1998.

Dawne lived in Ulundi in KwaZulu/Natal where she advanced her Zulu language training that began at MSU in tutorial sessions with fellow graduate student and South African Nokothula Cele. Later, she lived in the rural area of Lesotho, a small kingdom located near Durban, in order to learn to speak Sesotho. Dawne also spent time in Soweto and Alexandra which gave her an opportunity for immersion in a multilingual urban environment.

The year-long experience gave Dawne the opportunity to prepare for her future dissertation research in Alexandra: “I investigated archival sources, established valuable contacts within the Alexandran community and with scholars of South Africa who helped me to further understand the importance and feasibility of my dissertation project” Dawne was one of six MSU students who were awarded a record number of IPFP fellowships for work in Africa that year.

What contributes to MSU students’ remarkable success rate at earning these prestigious fellowships? Wiley believes one factor is the combination of the strength of the University’s highly-ranked and internationally-experienced social science faculty and the programs in international studies sponsored by its multidisciplinary area centers on campus.

These centers include the African Studies Center, Asian Studies Center and the Center for Latin American and Caribbean Studies, the Center for Advanced Study of International Development (CASID), Center for International Business Education and Research (CIBER), Center for Language Education and Research (CLEAR), and Women and International Development Program (WID).

MSU receives approximately $1.6 million annually from the U.S. Department of Education’s Title VI Program for creating national centers of international expertise. Additionally, MSU faculty members who have conducted research and taught abroad serve as mentors for graduate students who are applying for the IPFP awards. Approximately 400 MSU faculty are members of these centers, based on their experience abroad in research, teaching, and international development service.

Students also benefit from the resources put in place by the College of Social Science in order to support the application and fellowship proposal process. The College established a committee of faculty members, representing the various disciplines served by the IPFP fellowships, to preview students’ proposals and provide feedback on how to strengthen their applications. Prompted by MSU students’ impressive success rate, other institutions competing for IPFP fellowships are now developing similar committees to serve their own students.

Another key to MSU students’ success is the International Social Science Research Seminar. Over the past decade, Dr. Wiley, Professor Tom Carroll of CASID and Professor Scott Whiteford of the Center for Latin American Studies have offered this two-semester seminar, which is open to all MSU students.

The course focuses on the strategies and details of developing and writing research proposals using social science theory and methods. Students complete the second semester with a draft of their own proposal which they then can polish for submission to fellowship programs such as the IPFP, Fulbright-Hays, National Science Foundation, and other grantors. Although students applying for the IPFP are not required to take the seminar, a high percentage of past award winners completed the seminar.

Dean Karen Klomparens of the Graduate School applauds these faculty for their commitment to mentoring graduate students through this seminar: “The willingness of the faculty to guide and advise students through this process contributes greatly to our success in this competition. This should surely be considered a ‘best practice’ at MSU.’”

The IPFP is offering one final competition in Fall 2000, for which faculty again will review draft proposals beginning in October. For application forms, see Ms. JoAnn Elden in the College of Social Science, 203 Berkey Hall (517-355-6674).

### IPFP Award Winners, 1992-1999

<table>
<thead>
<tr>
<th>Year</th>
<th>Winner</th>
<th>Discipline</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>M. C. Ennis-Macmillan</td>
<td>Anthropology</td>
<td>Central America: Mexico</td>
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<tr>
<td></td>
<td>Janice L. Harper</td>
<td>Anthropology</td>
<td>Africa: Madagascar</td>
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<td></td>
<td>Deborah P. Theado</td>
<td>Sociology</td>
<td>Africa: Angola</td>
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<td></td>
<td>Douglas C. Wilson</td>
<td>Sociology</td>
<td>Africa: Tanzania</td>
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<tr>
<td>1993</td>
<td>Tim Carmichael</td>
<td>History</td>
<td>Africa: Ethiopia</td>
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<tr>
<td></td>
<td>John Davis</td>
<td>Political Science</td>
<td>Africa: Mali</td>
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<tr>
<td></td>
<td>Chege Githioura</td>
<td>Linguistics</td>
<td>Central America: Mexico</td>
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<tr>
<td></td>
<td>Keiko Tanaka</td>
<td>Sociology</td>
<td>Asia: China</td>
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<tr>
<td>1994</td>
<td>Raymond Familusi</td>
<td>Sociology</td>
<td>Africa: Nigeria</td>
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<tr>
<td></td>
<td>Liz MacGonagle</td>
<td>History</td>
<td>Africa: Mozambique</td>
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<tr>
<td></td>
<td>Hanna-Andrea Rother</td>
<td>Sociology</td>
<td>Africa: Zimbabwe</td>
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<tr>
<td></td>
<td>Teresa A. Swezy</td>
<td>Sociology</td>
<td>Africa: Uganda</td>
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<tr>
<td>1995</td>
<td>Mariaelena Jefferds</td>
<td>Anthropology</td>
<td>Central America: Honduras</td>
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<td>1996</td>
<td>Kimberly Smiddy Butler</td>
<td>Political Science</td>
<td>Africa: Malawi</td>
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<tr>
<td></td>
<td>Hilary Jones</td>
<td>History</td>
<td>Africa: Senegal</td>
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<tr>
<td>1997</td>
<td>Suzanne M. Broetje</td>
<td>Sociology</td>
<td>Africa: Kenya</td>
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<tr>
<td></td>
<td>Dawne Y. Curry</td>
<td>History</td>
<td>Africa: South Africa</td>
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<td></td>
<td>Heather Holtzclaw</td>
<td>Sociology</td>
<td>Africa: Zimbabwe</td>
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<td></td>
<td>Michelle T. Kuenzi</td>
<td>Political Science</td>
<td>Africa: Senegal</td>
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<td></td>
<td>Megan G. Plyer</td>
<td>Anthropology</td>
<td>Africa: Tanzania</td>
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<tr>
<td></td>
<td>Shannon H. Vance</td>
<td>History</td>
<td>Africa: Senegal</td>
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<tr>
<td>1998</td>
<td>Beth P. Dunford</td>
<td>Sociology</td>
<td>Africa: Mauritania</td>
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<td></td>
<td>Gina M. Lambright</td>
<td>Political Science</td>
<td>Africa: Uganda</td>
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<td></td>
<td>Jacquelyn B. Miller</td>
<td>Forestry</td>
<td>Africa: Tanzania</td>
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<tr>
<td></td>
<td>Andrea J. Vogt</td>
<td>Anthropology</td>
<td>Central America: Mexico</td>
</tr>
<tr>
<td>1999</td>
<td>Mona Elizabeth Jackson</td>
<td>History</td>
<td>Africa: South Africa</td>
</tr>
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Graduate student wins fellowship to pursue cutting-edge research
Brandon Hespenheide’s dual major doctoral program forges new pathways in the sciences

For thirteen years, the College of Natural Science has recognized outstanding predoctoral students through the Barnett Rosenberg Fellowship Program. This prestigious fellowship is named for Barnett Rosenberg, the MSU professor of biophysics who discovered the widely used anti-cancer drug, cisplatin.

The program recognizes the work of promising scholars in the biological sciences by awarding them a year of research funding in addition to providing for tuition, health insurance and other fees. This year’s recipient is Brandon Hespenheide.

Brandon is enrolled in an innovative, interdisciplinary Ph.D. program through the Departments of Biochemistry and Physics, working under the direction of Dr. Leslie Kuhn in Biochemistry and Dr. Michael Thorpe in Physics. The College of Natural Science encourages students to think and work across disciplinary lines and develop their own specialized Ph.D. as part of the dual major degree program offered to all doctoral students at MSU.

Dr. Kuhn and Dr. Thorpe see particular opportunities for students who wish to choose a major and a minor discipline that link the physical, computational, and biological sciences, as Brandon is doing. Brandon and fellow doctoral student A.J. Rader, whose dual major program also joins physics with biochemistry, are two of several pioneering students within the College whose work brings together the methodology and concerns of two formerly separate programs.

In 1998, Brandon was a junior at MSU majoring in biochemistry. As part of the Research Experience for Undergraduates summer program at MSU, sponsored by the National Science Foundation, Brandon spent 10 weeks working in the lab with Dr. Kuhn, applying computational techniques to study protein folding.

Explaining exactly how proteins fold and function within the human body is one of the “fundamental problems” facing biologists, according to Dr. Kuhn.

Their research at MSU is essentially a decoding project in which the challenge is to determine exactly how sequences of amino acids determine the shape and folding patterns of proteins, which would then allow scientists to understand and even optimize these molecular machines essential to most of life’s processes.

This protein folding project has become the basis for Brandon’s doctoral research, in which he is developing new computational approaches to studying the folding pathways and the flexibility of proteins.

What makes Brandon’s work particularly progressive is that he is using the computer to apply new theoretical models—drawn from algorithms developed for physics—to this research question which has primarily concerned biologists.

“The most exciting areas of research are happening across disciplines,” says Dr. Kuhn, commenting on the cutting-edge aspect of the work Brandon is doing under her guidance and the guidance of Dr. Thorpe.

It is not only scientists who are taking multidisciplinary approaches to their work; the cross-fertilization of methods and ideas across departments and programs is an emerging trend in institutions of higher education.

Brandon admits that learning the nomenclature and theoretical framework of a new field—in his case, it was physics—can be intimidating at first. He found the guidance he needed in a second
Seven graduate students awarded prestigious national fellowships

The Graduate School extends its congratulations to seven MSU graduate students who were awarded 2000-2001 Graduate Research Fellowships from the National Science Foundation (NSF).

The fellowships offer recognition and three years of support for approximately 900 outstanding graduate students in the mathematical, physical, biological, engineering and behavior and social sciences.

**MSU Recipients of NSF Graduate Research Fellowships**

Emily Avila-Teeguarden  
Cell and Molecular Biology

Tara L. Darcy  
Zoology

Natalie S. Dubois  
Zoology

Angela McMellen  
Zoology

Joshua M. Sacco  
Psychology

Sofia Wahaj  
Zoology

Cynthia Wei  
Zoology

Are you an MSU graduate student who has recently been awarded an external fellowship from a national competition or fellowship program?

We’d like to know about your success. Please email your information to Patty Payette at payettep@msu.edu.

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interested in creating your own dual major doctoral program?

All Ph.D. students at MSU have the opportunity to work with faculty to develop a dual major doctoral program to fit their specific interests and needs.

The request for a dual major must be made early in your graduate program, and requires approval by your faculty guidance committee, department chairs, deans of the appropriate colleges, and the dean of the Graduate School.

For more information, visit the “Interdisciplinary Programs” webpage at the Graduate School website: http://grad.msu.edu/admiss/multi.htm. You will also want to contact your department faculty for guidance and visit the Academic Programs catalog (http://www.msu.edu/unit/ucandc) for a review of the dual major requirements.
Innovative degree programs breaking new ground in science and industry

Students attain technical and business expertise with professional master’s degree

By Richard Swanson

An innovative new set of master’s degree programs offered primarily through the College of Natural Science (CNS)* is garnering enthusiasm from students, faculty and administrators. The new M.S. degree programs are much more than the traditional stepping-stone to the Ph.D., according to CNS Associate Dean Estelle McGroarty.

The Professional Master’s Degrees in Science Programs prepare students for careers in business and industry rather than academia. CNS departments of chemistry, mathematics, entomology, microbiology, physics and zoology now offer the professional M.S. degree.

“This set of programs is an excellent example of innovation in master’s degree education,” said Graduate School Dean Karen Klomparens. “Each combines rigorous disciplinary training with skill development in two areas required by the private sector: communications and business.”

The program was initially developed and funded by the Alfred P. Sloan Foundation—a non-profit institution that supports science and education projects. Dean Klomparens credits CNS Associate Dean McGroarty, former Graduate School Dean Gary Crawley, and MSU’s Sloan Foundation liaison Sheila Tobias with organizing the initial funding proposal.

All M.S. programs have departmental industrial advisors who were instrumental in constructing the programs. In Mathematics, for example, the present board of industrial advisors consists of representatives from Ford, Daimler-Chrysler, General Motors, Veridian, Anderson Consulting, Neogen Corporation, BF Goodrich Avionics, and Delta Dental.

The Department of Mathematics has had particular success in marrying academics to industry through its Industrial Mathematics M.S. degree, according to Professor of Mathematics Charles MacCluer. An essential component of this program is its “Industrial Projects Course,” in which students divide into teams of three or four to tackle an industrial problem; the students are assisted in these projects by a faculty member and an industry liaison.

“Projects are solicited from local industry,” Dr. MacCluer said. “We ask for ‘backburner’ projects that the company has not had time or resources to pursue.” He said that during the final presentation to the company, students “are amazed to see people truly interested in their results—a novel and addicting experience.”

MacCluer adds: “All of our industry participants have been delighted with our work; all have asked for a second project,” he said. MacCluer anticipates projects will lead to summer internships. “Some of our more aggressive teams have sold themselves as consultants to continue with the project,” he said.

Visiting Research Instructor Dr. Ralph Svetic has served as faculty advisor on many of the industry projects in the Industrial Mathematics M.S. program. He and MacCluer said they derive great satisfaction in helping mathematics students grapple with “open-ended, ill-defined problems”—unfamiliar territory to traditional mathematics students. “The function of an industrial mathematician is to clarify problems,” Svetic said.

Svetic is particularly pleased with the way one group of students tackled the task of improving the performance of a solid state gyroscope for B.F. Goodrich Avionics--a mathematical problem that had stumped the industry professionals.

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“The project involved a variety of data taken from the new solid state gyroscopes and delivered an algorithm for predicting certain temperature corrections that has improved the performance of the unit,” said Svetic.

An essential component of all the CNS professional M.S. degrees is the Business Management and Communication Certificate, administered through the Eli Broad Graduate School of Management.

The program was developed by the College of Business and the College of Communication Arts and Sciences, and is open to any student with a bachelor’s degree who wishes to develop managerial, leadership and business skills.
Industrial Mathematics master’s student Cara Brooks said the Business Management and Communication Certificate program was hard work, but well worth it. “At first it seemed almost torturous,” she admits. “After a long week of homework from my coursework and preparation for teaching, we would meet at the Kellogg Center for our 13-hour crash course in the topic of the month. Each topic was a learning experience; in the ‘Managerial Finance’ segment, we were instructed on how to read a balance sheet, income and cash flow statements, and how to decipher the small print in the Wall Street Journal.

“Most of the topics also had practical applications outside the business world. The ‘Negotiation and Consensus Building’ seminar helped improve my relationships, dealings with coworkers, and friends; thanks to the ‘Presentation’ seminar, my delivery of presentations is much more relaxed and professional. The ‘Business Law’ module made me more aware of the laws (or lack of laws) governing the Internet, patents, and e-commerce. I believe that my writing and speech has also improved as a result of the program,” Brooks said. “I must also add that the instructors were fantastic.”

“Now I am competent in my mathematics skills as well as confident in my ability to communicate with managers and those with technical and non-technical backgrounds,” Brooks said.

Industrial Mathematics master’s student Huseyin Yuce said the overall program expanded his horizons and helped him to understand the markets and think like a businessperson. “I had done nothing but teach math before this program,” Yuce said. “So this coursework was completely new. The Industrial Math program gave me a great deal of insight into the practical applications of math, improved my technical writing skills, and helped me to function as a team member,” he said.

Some faculty and administrators do acknowledge pockets of resistance to these new programs. “The resistance to change in the academy is both a strength and a weakness,” said MacCluer. “Faculty harbor an inbred Fabian socialist suspicion of the industrial world for valid historical reasons. They also fear risking the reputation of their department in ventures outside their academic experience.”

MacCluer said he believes the positive aspects of the program will eventually overcome this resistance. McGroarty said she also recognizes some resistance, but reports mostly positive reaction to the new degree programs: “Faculty advisors are saying to us, ‘this is what we have needed.’ ”

*The development of professional M.S. programs are now underway in the Medical Technology Program and the College of Veterinary Medicine.*