

RUTGERS UNIVERSITY  
ACADEMIC EXCELLENCE FUND AWARDS 2004-2005

<b>Advancing Rutgers' Mathematical Leadership: The Bridge to the Future</b> (Richard Falk, FAS-NB) To help advance the department's position as a leader in mathematics education and research and aid in the pursuit of academic excellence by providing for new faculty hires in strategically developed areas in advance of the faculty retirements anticipated over the next 5 years.	<b>\$250,000</b>
<b>Aerodynamically-Enhanced Plasma Processing of Nano-Coatings/Powders/Energetics</b> (Stephen Tse, SOE) To support multidisciplinary research and increased collaboration in synthesis, design, characterization, and modeling of nanostructured coatings, powders and energetics, establishing Rutgers as a premier center for both specific applications and scalable, high-throughput reactors.	<b>\$50,000</b>
<b>A BIAcore Biosensor for Biomolecular Interactions</b> (Longqin Hu, Pharmacy) and <b>Surface Plasmon Resonance Biosensor Technology to Support Proteomics Research</b> (Nilgun Tumer, Cook College) (cooperative proposal) To purchase a state-of-the-art Biacore SPR biosensor for analysis of biomolecular interactions, providing detailed information on binding events for use as a shared instrument by multiple faculty across disciplines, departments and schools.	<b>\$250,000</b>
<b>Bio-Math Connect Institute</b> (Fred Roberts, DIMACS) To support research into the impact of a multidisciplinary program that explores connecting the mathematical and biological sciences at the high school level. The program will run an experimental summer program in 2005, establishing Rutgers as a national leader in pre-college bio-math.	<b>\$100,000</b>
<b>Camden Early Childhood Research Learning Academy</b> (Gloria B. Santiago, Center for Strategic Urban Community Leadership) To support establishment of a facility that will serve as a model for preparing children younger than 5 years old for success in education.	<b>\$75,000</b>
<b>Center for Analysis and Design of Social Institutions</b> (Barry Sopher, FAS-NB) To support the establishment of an interdisciplinary Center to study decision-making processes. Particular focus will be given to formal mechanisms with specific rules, such as a stock market or an electoral system.	<b>\$120,000</b>
<b>Center for Engineering On-Line Diagnostics to Control Advanced Materials Manufacturing</b> (Timothy Wei, SOE) To initiate research and outreach activities related to mechanical and aerospace engineering sciences' project GOLDCAMP, Generating On-Line Diagnostics to Control Advanced-Materials Manufacturing Processes and enhance its viability for ongoing federal funding.	<b>\$50,000</b>

<p><b>Center for Health Services Research on Pharmacotherapy, Chronic Disease Management and Outcomes</b></p> <p><i>(Stephen Crystal, IHHCPAR)</i></p> <p>To support planning and development for a Center that will bring together existing strengths throughout Rutgers to address the mismatch of health treatment development and delivery. Objectives include quality improvement and more-effective use of medications, particularly for chronic health conditions.</p>	<p><b>\$140,000</b></p>
<p><b>Childhood Studies Program Development</b></p> <p><i>(Margaret Marsh, FAS-C)</i></p> <p>To help create a program that will provide advanced theoretical and methodological study of children and childhood within historical, contemporary, interdisciplinary, multicultural, state, national, and global contexts.</p>	<p><b>\$125,000</b></p>
<p><b>Climate Change: deforestation, agricultural productivity and the interface between the results of scientific research and its users in government, business, and private institutions</b></p> <p><i>(Richard Langhorne, Center for Global Change and Governance – Newark)</i></p> <p>To enhance data collection, recording and public dissemination, resulting in a better understanding of deforestation and its global effects.</p>	<p><b>\$90,000</b></p>
<p><b>Collaborative Initiative to Promote Global/International Education at Rutgers</b></p> <p><i>(Barbara Cooper, FAS-NB)</i></p> <p>To support Rutgers faculty in building a community of researchers engaged in global inquiry into issues normally studied by individuals in a more local context (e.g., ethnic conflict, integrating women in democracy, global migration and national identity). The goal is to both strengthen research collaboration and to build a coherent curricular program, particularly at the graduate level.</p>	<p><b>\$50,000</b></p>
<p><b>Conference on Free Speech in Wartime</b></p> <p><i>(Rayman Solomon, School of Law-Camden)</i></p> <p>To help fund a two-day conference on this topic in January. The timeliness of the topic and exceptional caliber of the twenty speakers are expected to attract wide interest nationally and internationally.</p>	<p><b>\$50,000</b></p>
<p><b>Controllable Wettability of ZnO Nanostructured Smart Surfaces</b></p> <p><i>(Yicheng Lu, LSM/IAMD)</i></p> <p>To support an interdisciplinary research initiative focusing on the synthesis and applications of ZnO nanostructured smart surfaces, and to advance the university's efforts in nanotechnology and materials science.</p>	<p><b>\$150,000</b></p>
<p><b>Decentralized Collaboratory for Investigative Research in Cancer Biology and Drug Discovery</b></p> <p><i>(Manish Parashar, SOE)</i></p> <p>To advance tissue microarray (TMA) technology through design, development, deployment and evaluation of <i>OncoMiner</i>, a peer-to-peer curator for automatically characterizing, quantifying, indexing, sharing, and associative mining of decentralized cancer databases and digitized specimens. The aim is improved understanding of the underlying mechanisms of disease progression and drug discovery. Researchers from UMDNJ and the Cancer Institute of NJ are project collaborators.</p>	<p><b>\$50,000</b></p>

<p><b>Department of Classics Visual Studies Teaching Initiative</b>  <i>(Corey Brennan, FAS-NB)</i>  To support the establishment of a comprehensive slide digitization and meta data markup project, conducted in coordination with RUL Technical and Automated Services. This library of archival quality digitized images will be available to all Rutgers faculty and students, with a subset available for distribution via CD-ROM to public K-12 Latin programs throughout NJ.</p>	<p><b>\$45,000</b></p>
<p><b>Detection of Non-Palpable Tumors and 3D Reconstruction</b>  <i>(Assimina Pelegri, SOE)</i>  To establish Rutgers as a premier center for advanced technologies enabling tumor detection, as well as modeling and reconstruction of tumorous tissues. The vehicle for carrying this out this is an efficient method that utilizes profiled pressure waves to develop a safe, non-invasive technology for breast tumor detection.</p>	<p><b>\$50,000</b></p>
<p><b>Feasibility Study to Establish a Freight Transportation Center of Excellence at Rutgers, The State University of New Jersey</b>  <i>(Martin Robins, Bloustein School)</i>  To develop a viable and dynamic interdisciplinary freight program that would draw on existing strengths and capabilities, and match them with regional and national freight stakeholders' needs.</p>	<p><b>\$160,000</b></p>
<p><b>Functional Nanotubes for Nano-bio-engineering</b>  <i>(Manish Chhowalla, SOE)</i>  To support ground-breaking research into the functionalization for carbon nanotubes and provide a springboard for future interdisciplinary research involving multiple investigators at Rutgers and UMDNJ. The research is expected to attract external funding and underpin a number of activities related to the new IAMD.</p>	<p><b>\$50,000</b></p>
<p><b>Governor's School of Business</b>  <i>(Milton Leontiades, School of Business-Camden)</i>  To help create a program for gifted and talented high school students who have completed their junior year and provide them with an enriched educational opportunity. A Governor's School for Business would be the seventh and latest addition to existing Governor's Schools, and the only one dedicated to business education.</p>	<p><b>\$50,000</b></p>
<p><b>Institute for Computer and Information Security (ICIS)</b>  <i>(Haym Hirsch, FAS-NB)</i>  To support the creation of one of the world's leading centers for research and education in computer security. The center will channel talent from across the University into a single focus to stimulate research initiatives, improve federal funding, provide educational opportunities, catalyze technology transfer and economic growth, and achieve world wide visibility and excellence for Rutgers in computer and information security.</p>	<p><b>\$180,000</b></p>
<p><b>Instruments for Cancer Prevention Research: Mouse colonoscopy system and high-throughput screening system</b>  <i>(Chung Yang, Pharmacy)</i>  To support the acquisition of a video colonoscopy system (for mice) and a high-throughput screening system to further enhance cancer prevention research. These systems will enable the non-invasive monitoring of cancer development in mice and rats through their lives, and more efficient screening of cancer preventive agents.</p>	<p><b>\$40,000</b></p>

<p><b>Multiphoton Microscopy for Imaging of Microthrough Nanoscale Biosystems</b></p> <p><i>(Prabhas Moghe, SOE)</i></p> <p>To significantly enhance the multiphoton imaging instrumentation to enable investigation of cell-material interactions in real-time and in combinatorial formats. These enhancements will have a major impact on researchers in a wide spectrum of disciplines at Rutgers as the Multiphoton Microscopy facility is being developed into a full-service facility.</p>	<p><b>\$35,000</b></p>
<p><b>Neighborhood Redevelopment in the Georges Road Area through the Institute for New Brunswick Development</b></p> <p><i>(Radha Jagannathan, Bloustein School)</i></p> <p>Continued support for the Institute for New Brunswick Development. Emphasis will be on the implementation of Recommendation II in the George’s Road Gateway Planning Project Report: the reclamation of Pine Street Recreation Park for use by neighborhood residents. A model for establishment of neighborhood redevelopment projects.</p>	<p><b>\$50,000</b></p>
<p><b>Newark X-Ray Structure Facility</b></p> <p><i>(W. Phillip Huskey, FAS-N)</i></p> <p>To purchase, with matching funds from NJIT, an X-ray diffractometer for nanomaterial research, training in molecular structure determination, and to promote shared instrumentation projects between NJIT and Rutgers-Newark.</p>	<p><b>\$150,000</b></p>
<p><b>Organizational Collaboration and the Quality of Health Care Delivery</b></p> <p><i>(Saul Rubenstein, SMLR)</i></p> <p>To support a cross-disciplinary study of the organizational components of quality problems in NJ patient care and to develop and test solutions.</p>	<p><b>\$100,000</b></p>
<p><b>Prisoner Reentry Research Planning Initiative</b></p> <p><i>(Mercer Sullivan, School of Criminal Justice – Newark)</i></p> <p>To support the implementation of research and action projects that contribute to a broad and rigorous research base that informs public policy.</p>	<p><b>\$60,000</b></p>
<p><b>Rutgers Ethics Initiative: A Proposal to Establish Rutgers as a Nationally Prominent Center for the Study and Practice of Ethics</b></p> <p><i>(Edwin Hartman, RBS-NB/Newark – Ruth Mandel, Eagleton Institute of Politics)</i></p> <p>Joint Proposal: Eagleton Institute &amp; PBEC</p> <p>To establish Rutgers as a nationally recognized center of excellence for research and teaching in ethics and its applications in business, politics, and other areas. The project will promote greater consideration of ethical issues among faculty and students.</p>	<p><b>\$110,000</b></p>
<p><b>Setting the Stage for Informed, Objective Deliberation on Property Tax Reform in New Jersey</b></p> <p><i>(Paul Tractenberg, Rutgers School of Law – Newark)</i></p> <p>To advance scholarly research on education policy issues, and inform public discussion of those issues, in the area where school finance and education reform intersects with tax reform.</p>	<p><b>\$70,000</b></p>
<p><b>Strengthening the Basic Writing and Mathematics Programs in NCAS and UCN</b></p> <p><i>(Annette Juliano, FAS-N)</i></p> <p>To assist initiatives designed to support, strengthen, and improve students’ skills and success in English and mathematics. These initiatives are fundamental to the success of the undergraduate curriculum.</p>	<p><b>\$100,000</b></p>

<p><b>Technology NOW: Developing the Technological Expertise and Offerings of the College of Nursing for the 21<sup>st</sup> Century</b></p> <p><i>(Wendy M. Nehring, Nursing)</i></p> <p>To increase technological expertise in the form of training in and delivery of additional online instruction, the purchase and use of PDA's for clinical practice, and development in aspects of use of the human patient simulator.</p>	<p><b>\$60,000</b></p>
<p><b>Towards a Practical Quantum Computer: The Design and Realization of Fault-Tolerant Qubits</b></p> <p><i>(Lev Ioffe, IAMD)</i></p> <p>To support a series of studies to develop, model, design and characterize a family of fabrication-friendly fault-tolerant qubits which are indispensable for the practical realization of a working quantum computer. The fundamental limitations/strengths of conventional qubit designs will also be studied.</p>	<p><b>\$90,000</b></p>
<p><b>Triple Quadrupole GC/MS for Analysis of Trace Organics in Environmental Matrixes</b></p> <p><i>(Lisa Totten, Cook College)</i></p> <p>To purchase a gas chromatograph with tandem mass spectrometer for use in quantifying trace organic compounds in environmental samples, and further research in environmental and natural sciences.</p>	<p><b>\$175,000</b></p>
<p><b>Wireless Ecosystems: Distributed Resource Sharing, Self-Organization, and Security in Networks of Cognitive Radios</b></p> <p><i>(Dipankar Raychaudhuri, SOE/WINLAB)</i></p> <p>To strengthen Rutgers design, analysis and experimental capabilities in key technology areas, with emphasis on the wireless ecosystem as a unifying concept.</p>	<p><b>\$50,000</b></p>