



University of Connecticut  
*Financial Planning and Management*

Lorraine M. Aronson  
*Vice President*

November 14, 2006

**TO:** Members of the Board of Trustees

**FROM:** Lorraine M. Aronson ~~VP~~  
Vice President and Chief Financial Officer

Bruce A. DeTora <sup>AD</sup>  
Chief Financial Officer

**SUBJECT: STATE APPROPRIATION REQUEST FOR THE BIENNIUM  
FISCAL YEARS 2008 AND 2009 FOR THE UNIVERSITY OF  
CONNECTICUT, STORRS & REGIONAL CAMPUSES**

**RECOMMENDATION:**

That the Board of Trustees endorse the program priorities contained in the Expansion Option State Appropriation Request for the Biennium Fiscal Years 2008 and 2009 for the Storrs-based program's Faculty Hiring Plan and the Eminent Faculty Program.

**BACKGROUND:**

The process for requesting an Expansion Option (that is, an "above current services" request for funding for programmatic expansion) from the Office of Policy and Management is two-fold. The first step requires approval of the concept by the Secretary or Deputy Secretary. If approved, the second step involves submission of a more detailed proposal. Requests outlining the concept of the expansion option were due October 13, 2006. Our request for the Storrs-based program included two items: the Faculty Hiring Plan and the Eminent Faculty Program, which were submitted with the understanding that the Board would discuss them at the November meeting. On November 1, 2006 we were informed by OPM that we will not be permitted to pursue these requests to the next stage. As a result, these initiatives will go no further in the state budget process. However, because the requests were originally submitted with the understanding that they would receive Board review, and because they represent such significant initiatives, we bring these items forward for Board endorsement of the programmatic priorities they embody.

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352 Mansfield Road Unit 2122  
Storrs, Connecticut 06269-2122

Telephone: (860) 486-5115  
Facsimile: (860) 486-1070  
e-mail: lorraine.aronson@uconn.edu

The first initiative, our Faculty Hiring Plan, was also submitted to the Office of Policy and Management for the last biennial budget. It has been updated to reflect enrollment increases since that time. The updated version of the plan is attached. As you know, the dramatic increase in enrollment at UConn has made it a real challenge to meet course demand, provide quality instruction (including improving our student:faculty ratio from 17.4:1 to 15:1), and ensure that students can graduate in four years. Through aggressive budgetary reallocations, we were able to hire 51 additional faculty last year and 18 with the start of this semester. Without additional financial assistance, we will only have the resources to fill vacancies. To reach our goal, we wish to hire an additional 175 faculty members over the next five years.

The second initiative for the Storrs-based program is for the Eminent Faculty Program. This program, new for Fiscal Year 2007 with the enactment of Public Act 06-83, provides \$2 million in state funds (with matching private resources) to enable the University to bring to Connecticut top-flight scientists and their research teams. In order to come up with an institutional plan for the Eminent Faculty Program, we have developed a process to elicit proposals University-wide. In the evaluation of these proposals, we use four weighted criteria in keeping with the provisions of the law:

1. Potential for technology commercialization and economic development;
2. Potential (and timing) for attracting industry or private match;
3. Current institutional strength, focus in the area, and immediacy of implementation; and
4. Depth of response to legislative intent regarding area of scholarship.

As a result of this process, four major areas of focus have emerged. Depending upon the budgets (currently under development) that are required in these areas, we plan to pursue two of them this year and request another \$2M base budget in FY '08 to pursue the other two. We recognize the central importance of commercial potential and private support and are pursuing fiscal commitments from business and industry. The four areas of focus are: fuel cells, nanotechnology, cancer chemoprevention and control, and functional foods.

#### Fuel Cells

The School of Engineering at UConn has a premier fuel cell center, the Connecticut Global Fuel Cell Center (CGFCC). The CGFCC occupies a 16,000 square foot facility with dedicated faculty, staff, equipment, and facilities—unique nationally both in terms of University investment and organizational structure. The CGFCC began in 2001 as a partnership between the School of Engineering, CT Innovations, Inc., and Connecticut industries. Since then, CGFCC has attracted 21 industrial and agency clients who have funded research in the science and engineering of fuel cells and systems. The goal of this initiative is to make fuel cell technology useful to society by bridging the science and engineering gap between technical development and broader societal needs: systems to run automobiles, factories, and homes; energy independence; and reduced environmental pollution. We hope to attract eminent faculty in a field such as electrochemistry,

mechanical engineering, or materials science to aid in the development of these transitional technologies.

#### Nanotechnology

The main research thrust will be in nanobionics, an area that lies at the intersection of nanotechnology and biotechnology. This research seeks to understand natural biological processes and exploit their design for the purpose of enhancing modern technologies that interrogate individual cells and biological molecules in situ, promote cell communication, and lead to the design of new and improved materials based on those synthesized by nature. Advances in this field will find an abundance of applications ripe for commercialization. These include products and processes advancing the areas of structural biology, pharmaceutical science, biological sensors, cell signaling, and gene therapy. UConn scientists in the College of Liberal Arts and Sciences and the Institute of Materials Science have already developed a partnership, with significant resources committed to this endeavor.

#### Cancer Chemoprevention and Control

The prevention and control of cancer remains a major public health problem. Initiatives in this area have great potential for commercialization as well as for attracting research funding from private and/or industry sources. The pharmaceutical industry is a particularly strong part of Connecticut's private sector. Thus, research efforts in the area of cancer chemoprevention and control are ideally suited for interactions with this critical sector of Connecticut's economy. The UConn School of Pharmacy is perhaps uniquely situated in this regard. Several scientists from Connecticut's pharmaceutical industry hold adjunct appointments in the School. Our faculty hold important joint patents with, and receive research support from, the pharmaceutical industry. Another indicator of industry regard is philanthropic support, which includes in the last two years the Pfizer Distinguished Endowed Chair in Pharmaceutical Technology and the Boehringer-Ingelheim Endowed Chair in Mechanistic Toxicology. Numerous private foundations support research in cancer prevention and control including the American Cancer Society (of which Dr. Runowicz is the President), the National Colorectal Cancer Research Alliance and the Cancer Research and Prevention Foundation. Local organizations exist as well, including the Donaghue Foundation, and CURE (Connecticut United for Research Excellence). Our efforts to secure matching funds will encompass all of these potential partners.

#### Functional Foods

We propose to establish a world-class multidisciplinary research program into the important aspects of plant-based functional foods and bioactive food components, with the ultimate aim of developing a University-wide functional foods center. The term, "functional foods", refers to natural and processed foods containing bioactive compounds that promote health and bodily functions beyond their nutritional value. Evidence indicates that many of the bioactive compounds possess anti-atherogenic, anti-carcinogenic, anti-diabetic, anti-inflammatory, and immune-enhancing properties. Several examples of bioactive compounds of plant origin ("phytochemicals") are

flavonoids from berries, vegetables, and tea (antioxidant, antiatherogenic, anticancer, anti-diabetic, and anti-inflammatory), carotenoids from a variety of pigmented fruits and vegetables (antioxidant and anticancer), sulforaphane and glucosinolates from cruciferous vegetables (anticancer and antiatherogenic), limonoids from citrus fruits (anticancer and antiviral), anthocyanins and proanthocyanidins from blackberries, blueberries, raspberries, and black currants (antioxidant, anticancer, and antiatherogenic), and beta-glucans from mushrooms (immune stimulant). Appointment of a member of faculty respected for his/her work in this area plus the establishment of a research team will serve as a critical catalyst in the development of a multidisciplinary University Functional Foods Center. The specific objectives of the proposed Center are: 1) to identify and characterize bioactive compounds in fruits, vegetables, and crops with particular emphasis on those grown in Connecticut and other New England states, and to elucidate the mechanisms of their biologic actions and health benefits through basic and clinical studies. We will take a genomic and metabolomic approach that will require state-of-art gene array and metabolite analytical instrumentation; 2) to develop and provide new research-based strategies for health maintenance and disease prevention by consumer education and by the translation of scientific information and outreach to the citizenry and medical practitioners leading to modification of food choice and habits; and 3) to develop biotechnology based on research findings and coordinate biotechnology transfer and the creation of companies for the development of marketable functional foods and nutraceuticals. We will seek out partnerships with medical, educational and food industry entities, including New England farmers groups such as New England Vegetable and Berry Growers Associations.

## **University of Connecticut: Updated Plan for Increasing Full-Time Faculty**

The University of Connecticut contributes mightily to our state's economic growth. The numbers tell part of the story: the Connecticut Center for Economic Analysis documents that annually UConn generates nearly 38,000 jobs outside the University, leverages \$800 million in private and federal investment, and adds \$3.1 billion to Connecticut's gross state product. UConn also contributes to the state's well-being by conducting research that enhances Connecticut's scientific and technological infrastructure, and by improving health care, education and the environment.

Today, UConn's role is particularly vital. Our mission is to increase Connecticut's intellectual capital by producing graduates of the highest quality.

The state's \$2.3 billion investment in UConn's campuses, the dramatic success of private fundraising stimulated by the state's matching grant program, national visibility stemming from athletic success and a growing reputation for quality and rigor have combined to generate massive growth in student applications in terms of number, cultural diversity, and academic quality. These top students and UConn's exceptional new facilities help attract talented faculty and researchers who advance knowledge and help the state's businesses and their employees to be productive and competitive in today's global marketplace. Through educational programs, new research initiatives, and business partnerships, UConn plays a significant part in creating Connecticut jobs and building our state's economic strength.

The University's growing reputation helps keep Connecticut's best students in our state and draws excellent students from elsewhere—students who frequently remain in Connecticut upon graduation and join the state's economy. Undergraduate enrollment at UConn has increased from 14,667 in 1995 to 20,784 today. During this same period, total enrollment in all programs increased from 22,471 to 27,994. Not only has the size of our student body increased, so has the quality. From fall 1995 to fall 2006, average SAT scores for Storrs freshmen increased from 1113 to 1195. At the same time, minority enrollment increased by 95%. And this fall's Storrs freshman class included 98 valedictorians and salutatorians. At the same time we have developed articulation agreements with the Community College system to facilitate the transfer of students interested in pursuing a baccalaureate degree.

This planned enrollment increase has understandably been a challenge. Our student to faculty ratio (based on the U.S. News & World Report formula) has also increased from 14.2 to 1 in 1995, to a high of 18.2 in 2003 following the state's Early Retirement Incentive Program (ERIP). For fall 2006, the ratio is estimated to be 17.4:1. This decline is partially the result of refilling positions that became vacant following the ERIP. However, we are pleased to report that during FY '06, we made difficult reallocation decisions and were able to hire 51 additional full-time faculty for this academic year. We currently estimate an additional 18 faculty hires for fall 2006. Unfortunately, for next year we will only have the resources to replace the positions that become vacant through

retirements and resignations. We do not, as a result, foresee significant changes in faculty numbers in the coming year without financial assistance.

We recognize that we need to continue to enrich the educational experience of our undergraduates and, equally important, strengthen our research and scholarly activity. The University's plan to increase full-time faculty is designed to achieve four goals: enhance the quality of the student experience, further the state's economic growth through research and workforce development, solidify the University's growing national reputation, and maximize the investment of parents and all taxpayers by ensuring that students can graduate in four years.

Last year the University established the goal of a student to faculty ratio of 15 to 1. This is the ratio that exists at our peer institutions. To reach this goal, we would need to hire an additional 175 positions over the next five years. The hires would be made in areas that respond to student demand, offer greatest research opportunity and tie to the state's economic development. The initial positions would be in the fields of the state's workforce needs, namely science, technology and financial services. All 175 would be active in both instruction and in research. Large class size limits the close interaction between students and faculty that has traditionally been a hallmark of a UConn education (and that differentiates us from some of our "mega-university" peers in other states); moreover, in fields where facilities place an absolute limit on number of enrollments (e.g., lab sciences) students are often closed out of required classes, delaying the time required to complete a degree. We take great pride in having worked hard to increase the number of nurses needed to meet the critical shortage in the state. Recognizing that Connecticut's economy has a strong science and engineering underpinning we have increased the number of engineering graduates by 50% from 1995 to 2006. However, the lack of faculty now limits further growth in the numbers of graduates in these fields.

The proposed increased instructional capacity will be combined with clarity of expectation, increased academic counseling, course and scheduling adjustments and other support systems to help ensure that our students graduate in four years as a matter of course. While our students on average graduate in 4.4 years compared to a peer average of 4.6, and our 6 year graduation rate is high among the nation's public universities. Our goal is to ensure that almost all of our students should be completing a degree in four years flat. Ensuring that students can graduate in four years will make better use of state operating and capital resources, enable more students to take advantage of a UConn education—and, not insignificantly, save parents and students the costs associated with the need for an extra semester or more. This should make UConn's already competitive price into an even bigger bargain for Connecticut parents.

The University of Connecticut's role as the State's public *research* university imposes a special responsibility. Our faculty not only convey knowledge in the classroom or lab; they also generate new knowledge, contributing to the quality of life and economic development of the state and the intellectual vitality of our own institution. Strategic choices in faculty hiring will also generate more grant income which will, in turn, enable the University to invest more in the research enterprise. New facilities, private

endowments and excellent new hires have led to a growth in Storrs-based research awards from \$53.4 million in FY '95 to an estimated \$91.7 million in FY '06. Though impressive, this amount of funded research falls short when compared to our peers. The level of research funding is important for two reasons. First, it stands as a proxy for the degree of advanced scholarly activity on campus. Second, and more concretely, research funding provides the non-State resources that also serve to enhance the academic program. Third, research is a critical aspect of our relationship with business and industry. The translation of research into jobs and products is key to Connecticut's future.

One challenge in making this plan a reality is that faculty in the cutting edge fields of science and technology are highly sought after and need to be provided a competitive remuneration. Also, these areas require an investment in support staff if we are to achieve the anticipated outcomes. We anticipate that the total permanent cost of implementing this hiring plan will be approximately \$25.6 million for faculty salaries and fringe benefits and \$5.5 million to hire support staff (see chart below for details). Our plan would be to make these hires over a five year period.

The stature of the University of Connecticut continues to grow and we are poised to be among the best institutions of public higher education in the country. Completing the implementation of the academic plan with the proposed addition of new faculty will allow the University to fulfill its mission and its promise to all of Connecticut.

**Biennial Budget Appropriation Request**

	<b>Appropriation Increment</b>	<b>Fringe Benefits</b>	<b>Total</b>	<b># Faculty</b>	<b># Support Staff</b>
FY '08	\$4,558,000	\$1,756,197	\$6,314,197	35	18
FY '09	<u>\$4,502,000</u>	\$1,734,620	\$6,236,620	<u>35</u>	<u>17</u>
	\$9,060,000			70	35

**Total Five-Year Cash Outlay**

	<b>Salary</b>	<b>Fringe Benefits</b>	<b>Total</b>
FY '08	\$4,558,000	\$1,756,197	\$6,314,197
FY '09	\$9,060,000	\$3,490,818	\$12,550,818
FY '10	\$13,562,000	\$5,225,439	\$18,787,439
FY '11	\$18,014,000	\$6,940,794	\$24,954,794
FY '12	<u>\$22,466,000</u>	<u>\$8,656,150</u>	<u>\$31,122,150</u>
Total	\$67,660,000	\$26,069,398	\$93,729,398