THE RISING PRICE OF A QUALITY POSTSECONDARY EDUCATION: FACT OR FICTION?

HEARING

BEFORE THE

COMMITTEE ON EDUCATION AND THE WORKFORCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

HEARING HELD IN WASHINGTON, DC, OCTOBER 3, 2002

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HEARING ON THE RISING PRICE OF A QUALITY POSTSECONDARY EDUCATION: FACT OR FICTION?

THURSDAY OCTOBER 3, 2002

COMMITTEE ON EDUCATION AND THE WORKFORCE,

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C.

The committee met, pursuant to notice, at 9:37 a.m., in Room 2175, Rayburn House Office Building, Hon. John A. Boehner [chairman of the committee] presiding.

Present: Representatives Boehner, McKeon, Castle, Johnson, Ehlers, Biggert, Tiberi, Wilson, Miller, Roemer, Scott, Woolsey, Rivers, Tierney, Kind, Solis, and Davis.

Staff present: George Conant, Professional Staff Member; Patrick Lyden, Professional Staff Member; Deborah L. Samantar, Committee Clerk/Intern Coordinator; Kathleen Smith, Senior Communications Counselor; Jo-Marie St. Martin, General Counsel; Holli Traud, Legislative Assistant; Heather Valentine, Press Secretary; John Lawrence, Minority Staff Director; Charles Barone, Minority Deputy Staff Director; Mark Zuckerman, Minority General Counsel; James Kvaal, Minority Legislative Associate/Education; Maggie McDow, Minority Legislative Associate/Education; Alex Nock, Minority Legislative Associate/Education; Joe Novotny, Minority Staff Assistant/Education; Ann Owens, Minority Clerk; Suzanne Palmer, Minority Legislative Associate/Education; and Peter Rutledge, Minority Senior Legislative Associate/Labor.

OPENING STATEMENT OF CHAIRMAN JOHN A. BOEHNER, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C.

Chairman Boehner. A quorum being present, the Committee on Education and the Workforce will come to order. We are meeting today to hear testimony on the rising costs of postsecondary education. Under Committee Rule 12(b), opening statements are limited to the Chairman and ranking member.

With that, I ask unanimous consent for the hearing record to remain open for 14 days to allow member statements and other extraneous material referenced during the hearing today to be submitted for the official record. Without objection, so ordered.

Let me just apologize for the normal course of action around here. Yesterday afternoon we were called to the floor for votes. Unfortunately, today we are likely to have something similar, but we are going to try to get through all of the testimony.

I do understand that several witnesses have to leave at 10 o'clock. I do appreciate your willingness to come back today. We are going to try to move this as quickly as we can today.

We are here today to examine the increasing costs of postsecondary education and the effect it has on students and families.

As we approach the upcoming reauthorization of the Higher Education Act, I think it is important for every member of this committee to understand what is really happening with tuition prices and what factors influence tuition increases, and what we can do at the federal level to try to keep college costs affordable for students across the country.

Since the early 1980s, tuition and fees of postsecondary institutions have outpaced increases in the rate of inflation and family incomes. Each year, these cost hikes have been two to three times the rate of inflation. And while we have continued to increase student financial assistance significantly every year, tuition spikes have outpaced our best efforts to stem this trend.

When we return to our districts, many of us hear from parents, students, and others about their worries over funding of a postsecondary education. It concerns me that at a time when we make available far in excess of $50 billion a year in student financial assistance, not to mention the billion dollars spent by states, philanthropies, colleges, and universities themselves, parents and students are afraid they won't be able to pay for college.

Last year, under the rate cut formula negotiated by Chairman McKeon as part of the 1998 Higher Education Act reauthorization, the federal student loan rate fell to its lowest level in history. Since 1995, we have significantly increased our aid for postsecondary education.

More students are receiving more federal support than ever, and we have increased the maximum Pell to historic highs. The Pell Grant Program is our highest priority for postsecondary education. Since 1998, the maximum grant has increased by 33 percent.

The CEOG program, which provides supplemental grant aid, is also at an all time high of $918 million. College work- study, which helps needy students earn while they learn, has been increased to $1.2 billion per year, and the list goes on.

These programs are often the only hope for low-income students to achieve their dream of obtaining a higher education. Unfortunately, tuition increases have exceeded even these significant gains. Since 1981, the average tuition at public and private nonprofit institutions has more than doubled, even after taking inflation into account.

During that same time, family incomes have only increased some 27 percent, in real terms. Given these statistics, it is easy to understand why families have real concerns about how they are

going to pay for college.

Let me, at this time, yield to my colleague from California, Mr. Miller.

WRITTEN OPENING STATEMENT OF CHAIRMAN JOHN A. BOEHNER, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C. – APPENDIX A

OPENING STATEMENT OF RANKING MINORITY MEMBER GEORGE MILLER, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C.

Mr. Miller. Mr. Chairman, in the interest of time, I would like to associate myself with your remarks, and just thank you for holding this hearing. I cannot think of a more important hearing that this committee can conduct. I hope this is not the last hearing on this subject.

Somehow, we have got to figure out how to keep our pledge to make sure that every young person has the option and can properly make the decision of whether or not they can or should attend college without the financial considerations being a barrier to or thwarting the process by which they would make the decision of whether or not college made sense for them.

I thank you again for holding the hearing.

Chairman Boehner. Let me recognize you, Mr. Miller, to introduce our first witness.

Mr. Miller. Well, we have a wonderful panel here, Mr. Chairman. I would like to introduce to the members of the committee Dr. Robert Corrigan, who is the president of San Francisco State University, my alma mater. He has been president since 1988. Before that, he was at the University of Massachusetts.

He has also been deeply involved in our California community, and specifically in the San Francisco community. He probably has among the best records in the nation of having work-study students participate in public service within the community.

He has been deeply involved and chaired the effort of the ``America Reads'' challenge, and has also worked very hard along with his colleagues in trying to figure out how you keep these tuition costs down.

I think tuition at San Francisco State is now $1900, which is among the lowest in the nation, somewhat higher than the $45 a quarter when I went there. But we could return to yesteryear. It was $95 when I went to law school, and we shut the law school down because of the increase.

But, anyway, we are delighted to have you, President Corrigan, and look forward to your testimony, along with the other members of the panel.

Chairman Boehner. Our second witness today will be Dr. C.D. Mote, Jr. Dr. Mote became president of the University of Maryland and a professor of engineering at the Glenn Martin Institute in September of 1988. Prior to assuming the presidency at Maryland, Dr. Mote served for 31 years on the faculty of the University of California at Berkeley.

Let me recognize my colleague from Massachusetts, Mr. Tierney, to introduce our next witness.

Mr. Tierney. Thank you, Mr. Chairman, for the privilege to introduce Richard Freeland, who is the president of Northeastern University.

Northeastern University is a private university with a strong research program, and offers a comprehensive range of undergraduate and graduate degree programs. It emphasizes the link between classroom learning and workplace experience. The main campus is located in Boston.

But I am happy to say one of the satellite campuses is firmly entrenched in my district. Both my district office and Washington office have benefited from Northeastern interns who have given their time and energy.

Dr. Freeland began his service as president of Northeastern University in September of 1996. Although he has been president for six years, he spent his entire academic career in higher education. Under his stewardship, Northeastern has striven to achieve excellence as a national research university that is student-centered, practice-oriented, and urban.

Dr. Freeland has built upon Northeastern's practice-oriented education and tradition, and its strength in ties between the classroom and the workplace. I want to note that the university has increased its investment in student financial aid by 123 percent over the last five years.

This is indicative of the commitment to increase financial aid for deserving low-income students. In addition, the university provides a tuition discount in the form of reduced tuition charge.

I think we will all be interested in hearing more. I would like to thank Dr. Freeland for joining the committee today, and look forward to hearing your testimony.

Chairman Boehner. Thank you, Mr. Tierney. Our last witness today will be Dr. Gordon Winston. Dr. Winston has served as professor of economics for the Williams Project on the Economics of Higher Education since 1990, and is a leading researcher on cost and price issues as they affect postsecondary education.

Dr. Winston served as the director of the Williams Project from 1995 to 2001. Prior to that, he served as the provost of Williams College. He is also a member of the Institute for Advanced Study in Princeton, New Jersey, and was there from 1978 through 1979.

He has offered numerous reports on the factors that affect tuition prices for the National Center for Educational Statistics and the National Commission on the Cost of Higher Education.

Before our witnesses begin, members will ask questions when the witnesses are finished. You will each have five minutes to summarize your statement.

With that, Dr. Corrigan, you can begin.

STATEMENT OF DR. ROBERT A. CORRIGAN, PRESIDENT, SAN FRANCISCO STATE UNIVERSITY, SAN FRANCISCO, CALIFORNIA

Mr. Corrigan. Chairman Boehner, Ranking Member Miller, and Representative McKeon, and distinguished members of the committee, my name is Robert Corrigan, and I am the president of San Francisco State University, a 28,000-student public urban university that is part of a 23 California State campus system that enrolls over 370,000 students right now.

The mission of San Francisco State University, like that of the CSU system itself, is to provide a high quality, accessible education to the students of a very diverse state. To ensure access, the California State University has made a commitment to keep student fees as low as possible while maintaining academic quality.

This commitment has enabled us to attract and to graduate a very diverse student population. For example, at San Francisco State, almost 70 percent of our undergraduate students are students of color. Their average age is 24; 80 percent of them work, many full-time, and almost half receive financial aid.

For the current academic year, as Congressman Miller has suggested, the California State University charges $1428 per year in what you would call tuition. And added to this are campus space fees for local services such as student health facilities and student activities.

At San Francisco State, those fees total $398 annually, which means that our students pay a total of $1826. That is less than $2000 for a full year of university study. I would argue that this is an extraordinary educational bargain.Moreover, our tuition has not increased in eight years. In fact, it was decreased by 5 percent in 1998/99, and by another 5 percent the following year.

However, it costs the California State University roughly $10,000 per year to educate a student--considerably in excess of the roughly 2,000 that that student pays. Though the price of a CSU education has held steady over the past eight years, its costs have continued to rise.

Moreover, CSU is in a period of rapid enrollment growth exceeding its state-funded target this year by over 6,000 students; 25 percent of those unfunded students happen to be at San Francisco State this year.

As you know, California faces a major budget crisis. This state's $24 billion current budget deficit has already caused a CSU budget cut, and the fear is that there is more to come before the

year is out. If the state is no longer able to support the costs of education, California State University may have to look to other strategies to fund increased costs in enrollment growth, and that could in fact include fee increases.

Let me assure the committee, however, that CSU and its campuses are in fact working hard and imaginatively to cut costs and to increase efficiency while maintaining academic quality and access.

One major very successful undertaking, for example, has been the system's move to year-round operation. By greatly expanding summer course offerings, actually creating a summer semester, we are able to increase our enrollment capacity significantly without the huge capital costs that are associated with new buildings or new campuses. This also helps our students accelerate their time to a degree, a fiscal benefit both to them and, I would argue, to the state of California.

Another successful new approach is partnering with local community colleges in joint use projects, sharing facilities, while offering community college students the chance to earn selected four-year degrees at a site that might be convenient to them. For example, again, San Francisco State's ``Pathways'' project with Canada College in San Mateo County is a venture of this kind.

Early intervention programs that reduce the need for university level remediation are another California State University cost saver, and, I might add, quality enhancement. It frees up academic resources that would otherwise go into extensive remediation and brings us, as a bonus, better prepared students.

However, despite low fees, financial aid remains a critical component of the CSU's ability to serve a diverse student population. Financial barriers continue, as the chairman has indicated, to be a very real obstacle to a college education for many of our students.

The problem is particularly acute in San Francisco, which is one of the nation's most expensive cities in which to live, or in a city like San Francisco. At San Francisco State, the amount of unmet need, that is, expenses that students must face even after financial aid is factored in, total over $30 million per year.

Our average financial aid award falls far below the actual costs of student attendance, and this is money that students must find. They will do so by borrowing heavily from private loan programs by working longer hours than they should, by enrolling part-time rather than full-time, or by running up credit card debt.

I say this to highlight the need for the Federal Government to continue increasing financial aid, as well as its investments in other higher education programs. We urge you to increase the Pell Grant maximums, award levels; to increase funding for SEOG and federal work-study; and would also like to see increased funding for GEARUP and TRIO programs.

Finally, Mr. Chairman, I would like to extend an invitation to the committee to visit our campus in San Francisco, and consider the possibility of holding a field hearing there. That would

enable you to see for yourselves firsthand the challenges that our students face and the sacrifices that they make on a daily basis to realize their educational goals.

Mr. Chairman, members of the committee, I thank you for taking the time to consider my testimony this morning. I will be pleased to respond to questions later.

WRITTEN STATEMENT OF DR. ROBERT A. CORRIGAN, PRESIDENT, SAN FRANCISCO STATE UNIVERSITY, SAN FRANCISCO, CALIFORNIA – APPENDIX B

Chairman Boehner. Dr. Mote.

STATEMENT OF C.D. MOTE, JR., PRESIDENT, UNIVERSITY OF MARYLAND AND PROFESSOR OF ENGINEERING, GLENN L. MARTIN INSTITUTE, COLLEGE PARK, MARYLAND

Mr. Mote. Chairman Boehner, members of the committee, thank you very much for this opportunity to testify today. My name is Dan Mote. I am the president of the University of Maryland at College Park. I am also the stand-in for William Kirwan, the chancellor of the University System of Maryland, who could not be with you today. His written statement has been submitted for the record.

As way of my background, Mr. Chairman, I have been at the University of Maryland for four years. I came in September 1998, after 31 years at Berkeley, once a Bear, and now a Terp.

Mr. Chairman, all of us here today, indeed, thank you very much, and your committee very much for taking on this most important agenda. Nothing could be more important to the future of our nation than higher education. It has become the hallmark of our nation.

While there are many benefits of a university degree that we could go on for quite awhile about, we should just point out the economic benefit. I just realized, after looking at an economic study from the year 2000, that 1986 graduates of the University of Maryland currently earn $52,000 on average.

That is about double what is earned by a high school diploma in that year. I think similar statistics are available from other states. We very much want to do everything in our power to ensure that this higher education and the prosperity that it brings to our nation and to our citizens remains available.

I would like to mention five points today very briefly. First, no one, not college presidents, boards, or certainly parents and legislators want to see tuition increased. Tuition is one critical revenue source among many.

State appropriations for public universities, especially payouts from endowments, gifts, and other contracts are other, and frankly much more preferred, revenue sources for covering the cost of

education. State policies balance the state appropriations and tuition costs.

Some states by policy have high tuition and low state appropriations; others have low tuition, high state appropriations; and others are sort of in the middle. I think Maryland would fall in the middle.

The second point I want to make is that families and students often don't pay the sticker price of tuition. In fact, many people overestimate the real tuition costs. When asked people's assessment of tuition costs, they usually are assessed at much higher than actual costs.

In 2001, for example, 40 percent of the students in the country paid less than $4,000 in tuition fees. This, of course, is not as low as at San Francisco State, which is quite remarkable. Third, of all of the factors that drive tuition decisions in the public institutions, the single most important one, of course, is state appropriation.

Over the last 40 years, the states' share of costs for higher education has systematically declined. As a result, tuition has increased. State funds now comprise less than half of the operating budget for public, four-year institutions. That figures about 33 percent in Maryland, and actually about 33 percent in California as well, and this trend will probably continue.

What has happened, in my personal view, is that higher education is no longer seen as a public good. It's seen more as a personal benefit. When it's a personal benefit, the beneficiaries seem to need to bear more of the costs.

There is an important point to be made here. For example, in Maryland, if the state appropriation to higher education were flat this year, it would take a 10 percent tuition increase to produce a four percent increase in overall expenditures.

That is because basically 20 percent of the operating budget comes from tuition; 33 percent comes from the state. As a result, if the state cuts its appropriation by 6 percent, it would take a 10 percent tuition increase just to produce a flat expenditure into the next year.

My fourth point is that the institution is especially sensitive to the impact on that increasing tuition costs has on the lowest income level students. A recent report of the U.S. Department of Education points out that the effective tuition costs for the lowest income students, after all the need-based scholarships are put into place, is the same now as it was in 1992.

So, in effect, these tuition increases have not affected this population. However, the middle income and the higher income students have been significantly affected. Possibly, the middle-income students especially deserve more of our attention, in terms of tuition problems.

Finally, understanding who actually makes the tuition decisions is important. In Maryland, there is a 17 member Board of Regents that is appointed by the governor and sets the tuition for the 11 degree granting institutions in the University System of Maryland.

In addition, and as a practical matter, the governor and the general assembly of the state also have to approve the tuition because they consider the tuition as part of state appropriation. So it basically is part of the law of the state.

While this decision making process I am sure varies from state-to-state, I think it would be the rare public institution that can actually set its own tuition based on its own decisions.

Mr. Chairman, I suggest that we are very much in agreement in our goal to provide high quality, affordable education. Our students certainly expect and look for high quality, affordable education. I think we can achieve these goals collectively.

Our institution, our governing boards, our states, and the federal government, as well, but we really have to work together and try to look at a collective funding base that would include state appropriations, federal resources, parental incomes, and, of course, all of the scholarships and workload.

My final comment would be that the shift of financial aid from students to work and loan rather than scholarship is a negative one for our country; too much loan, too many students graduating with too much loan. Thank you very much.

WRITTEN STATEMENT OF C.D. MOTE, JR., PRESIDENT, UNIVERSITY OF MARYLAND AND PROFESSOR OF ENGINEERING, GLENN L. MARTIN INSTITUTE, COLLEGE PARK, MARYLAND – APPENDIX C

Chairman Boehner. Dr. Freeland.

STATEMENT OF DR. RICHARD M. FREELAND, PRESIDENT, NORTHEASTERN UNIVERSITY, BOSTON, MASSACHUSETTS

Mr. Freeland. Chairman Boehner, Congressman Miller, committee members.

Chairman Boehner. You might want to turn on your microphone.

Mr. Freeland. Is that better? Chairman Boehner, Congressman Miller, committee members, I am pleased to testify on a subject of great importance. I will focus my remarks on my own institution, Northeastern University, which is a national research university located in the heart of Boston, an urban setting which I believe is typical of many private universities nationally.

Northeastern enrolls 16,500 students in a range of programs, with special emphasis on professional work in fields like engineering, business, and the health sciences. We are widely known for our program of cooperative education, through which students alternate full-time study and full-time paid employment.

I will say one other thing about our institutional character. We were founded to provide opportunity for students who were unable to afford other private colleges in the area. We have

always worked to keep Northeastern accessible.

Against that background, let me summarize recent trends in costs and prices, beginning with costs. Over the past five years, costs have increased by 46 percent, to $416 million. Because of growth, this translates into a 22 percent cost increase per student, and a current annual cost per student of $22,000.

Four factors account for theses increases: First, personnel costs are up by 33 percent for salaries, and 20 percent for benefits reflecting a tight labor market in scientific and technical fields, and the high cost of living in Boston.

Second, investments in technology have doubled, chiefly to assure that our students learn the state-of-the-art technology that will make them job ready graduates for the 21st century economy.

The third driver of costs has been construction. We have added $360 million in buildings and doubled our debt service and depreciation, chiefly, to provide residential facilities for out-of-state students.

The final pressure on costs has been financial aid, mostly in the form of tuition discounts. Over the past five years, as Congressman Tierney noted, our financial aid budget has grown by 123 percent, reflecting our commitment to the affordability of a Northeastern education. So costs are up, and they would be up by more without a strong effort of cost control.

We have eliminated weak programs, increased use of non-tenure track and part-time faculty, focused on energy savings, and participated in consortium-based purchasing. At the same time, we have increased non-tuition sources of revenue through fundraising and sponsored projects to minimize the effects of cost increases on tuition prices.

Against that background regarding costs, we must then consider prices.

Over the past five years, our nominal tuition, the so-called sticker price, has risen by 30 percent, to $18,000. This increase is close to the national five-year pattern among private universities.

As you know, however, and as the National Commission on College Costs stressed, many students do not pay the sticker price because of financial aid in the form of tuition discounts or funded scholarships. At Northeastern, we have increased the discount rate from 19 to 25 percent over this same five-year period.

Taking these discounts into consideration, the tuition actually paid by our students has risen by only 20 percent, to $13,500. And so, briefly stated, this is a story of costs and prices at Northeastern. Today, the annual cost of educating a student is $22,000. The price that students actually pay is only 60 percent of that number, $13,500.

The difference between our costs and price is a subsidy provided to all of our students. That number has increased over the past five years. Over that same period, our costs have risen somewhat more rapidly than our price.

Let me close with two thoughts. Despite our efforts to restrain costs, we worry, like this committee, about the burdens that attending college impose on students and families. We will continue to control costs, restrain price, and increase financial aid.

Most important, we deeply believe, given the extraordinary importance of a college degree to lifetime earning power, that the education we offer, despite the costs, is a solid value. Thank you, Mr. Chairman.

WRITTEN STATEMENT OF DR. RICHARD M. FREELAND, PRESIDENT, NORTHEASTERN UNIVERSITY, BOSTON, MASSACHUSETTS – APPENDIX D

Chairman Boehner. Dr. Winston.

STATEMENT OF DR. GORDON WINSTON, PROFESSOR OF ECONOMICS, WILLIAMS COLLEGE, WILLIAMSTOWN, MASSACHUSETTS

Mr. Winston. Mr. Chairman, members of the committee, staff, fellow witnesses, my written statement focused on a single point, and I want to emphasize it in my remarks this afternoon.

Higher education is economically a very unusual industry with very unusual firms. So our economic intuition and common sense, and our economic theory, based on a lifetime with experience with ordinary business firms, can really mislead us in very important ways.

Now, for an economist, that is great. It offers an opportunity for studies, and papers, and books. For a policymaker, it offers an opportunity to make good policy or bad policy depending on how alert you are to those differences.

Let me try in my five minutes to sketch out the main reasons colleges are not like firms, and what difference it makes. I hope there will be questions. You can appreciate the deep frustration of a professor being forced to stick to five minutes.

Most basic and most odd is that colleges--and it has come up three times before--sell their product, higher education services, to their student customers for a price that does not come close to covering the cost of its production.

Let me give you some numbers. In the table in the written statement, it costs the average student at the average college in the U.S.--and, unfortunately, 1995/6 is the most recent data we have--$12,400 to produce a year of education, which was sold for a price of $4,000.

Every student got a subsidy of $8400 a year. Now that is as if your Ford dealer sold you the Taurus that cost $20,000 to put on the showroom floor for a price of less than $7,000.

He would clearly go out of business. Colleges can do it and stay healthy because the difference, the student subsidy, is made up by what can broadly be called charitable contributions; donations, past and present; public and private gifts; appropriations; and earnings on wealth.

But the bottom line is that the students only pay a fraction of their costs, in sharp contrast to familiar businesses. This has several implications. A major one is that the usual link between cost and price is broken. If you are searching for why prices are going up, they might go up because costs go up; but they might go up because these donated resources are going down.

Certainly, the testimony of my fellow witnesses indicates, as do the facts, that this decrease is a major part of what has been going on. It is what has been happening to public sector schools, as states have withdrawn their per student support leaving more to be covered by tuition.

Second, those charitable donations are very unevenly distributed among colleges and universities in the U.S., and that creates a highly differentiated hierarchy among schools. In the top decile of U.S. schools, the average student gets a subsidy of $21,000 a year. In the bottom decile, it is $1,700.

The implication of this unevenly distributed wealth is that colleges and universities live in very different economic worlds, producing education at very different costs and quality, and charging prices that are very different. The one size fits all policy can be terribly dangerous.

The third fundamental fact, fundamental economic fact, let me underline, is that college education is made by a very strange production process. Students educate students. As a result, schools care to whom they sell their product.

High quality education simply cannot be produced without high quality students--not as passive recipients of the educational services the school is selling, but as active producers of it. The fiercest competition among colleges is for the best students.

Finally, there is pricing, which can be described as costs to your constituents. Price discounts are often given by colleges and universities for the familiar business reason of inducing students to buy more of it, or to increase quality. But price discounts are more often given for the quite idealistic reasons of equality of opportunity.

To make it possible for qualified low-income kid, who cannot afford even that subsidized sticker price, need-based financial aid is necessary. We ran some numbers at Williams a few months ago, and I was hoping I would be able to get to on our financial aid records.

Matching what kids actually paid to their family incomes, we found, gratifyingly, that the kid in the lowest 20 percent of the income distribution, with a family making less than $25,000 a year, paid just $1,783 for a year at Williams, room, board, tuition, and fees, with a sticker price of $33,000 and more. Clearly, a message is beware of sticker prices. Look at the net prices people

actually pay.

In my remarks in my written statement, I expressed a real concern about our abandonment of the really low-income ordinary kid. The high kid, the superstar, is fine, as the Williams numbers suggest. I worry about what public policy is doing to the low-income kids.

Thank you. I hope there will be questions. I will be happy to try to answer them as they come up.

WRITTEN STATEMENT OF DR. GORDON WINSTON, PROFESSOR OF ECONOMICS, WILLIAMS COLLEGE, WILLIAMSTOWN, MASSACHUSETTS – APPENDIX E

Chairman Boehner. We thank all of our witnesses for your endurance, and again, for the delay from yesterday. For the members and the witnesses, we have a vote on the floor, just one vote. Mr. McKeon has gone to vote. When he gets back, I will go vote. We want to keep the hearing rolling this morning. Dr. Corrigan, if you are going to go, we certainly understand.

Well, Dr. Winston, let's just pick up on where you left off, because I think that is really the point of this hearing is that we have this plethora of programs, whether they be loan programs, grant programs, aimed at trying to provide more access to postsecondary education for more of our students.

It appears to some of us that the more that we do on the federal government, the less support comes to universities from other avenues. We know about the states. Now there are states that have had some fiscal woes here for about a year.

But if you look at state support of higher education during the '90s, there is no stellar record, at a time when all states were spending at record levels. As we begin to look forward to the Higher Education Act next year, our concern is that we have our own budget issues that we are going to deal with.

But as we try to continue to provide means and better access for the poorest of our students, I think we are losing the race. Even with the tremendous increases we have made over the last five or six years, I think we are still slipping behind in terms of access for the lowest income students.

Let's take the bottom 20 percentile that you talked about, and look at the last five or six years. Were those students better off five or six years ago, or are they better off today? I will let you answer the question.

Mr. Winston. I wish I knew the answer. One of the things that surprised and encouraged me was looking carefully at what had been happening in the '90s. This fundamental phenomenon of states withdrawing support for colleges and shifting it, forcing it into higher tuition, lower quality, or both, strikes me as a driving phenomenon in this general question of why sticker prices are rising.

One of the encouraging things was that in the data the two-year college was apparently being protected in significant measure from those reductions in per-student appropriations. The

two-year colleges--and this is national data because I know essentially nothing about the particulars--appeared not to be taking the burden of adjustment through reduced quality or increased sticker price that the rest of public higher education was taking.

In that, I find something encouraging. I also, frankly, find something encouraging for the highly qualified, the Horatio Alger, the poor kid who does smashingly well. They can go to Princeton, or Williams, or Harvard, or Amherst, for a remarkably low price.

Now that is equality of opportunity. It is tough in that most kids are not going to get into those schools. But it is encouraging in that those who can, are able to afford it.

Chairman Boehner. How do we ensure access for the poorest of our students, as we look toward the Higher Education Act reauthorization?

I would look for comments from any of the three.

Dr. Corrigan.

Mr. Corrigan. You know, Mr. Chairman, 98 percent of our students do not have the opportunity to go to Amherst, or Princeton, or Harvard, or Williams. Northeastern and San Francisco State are examples of institutions that are trying to deal with that other 98 percent of the population.

The issue I think is that was really pointed out so well by Dr. Winston is the interface between quality and access. In California, the issue has been pushed on access. I gave you the figures; almost 70 percent of our students are students of color. They are first time college-goers. They are working class, blue-collar students.

The issue that I see is that we are in danger of providing access, but to a low quality education, because the resources are not there. When Mr. Miller was a student at San Francisco State, we would brag about the fact that he would be in a classroom with a full-time faculty member, doctorally prepared, with probably no more than 20 students, 25 students, in my class.

Now we are loading those students into large classes. We are using more and more adjuncts. We do not have the library books, the computer support, et cetera, that we need. What I am suggesting to you is that interface between access and quality for the people from the lowest incomes is really at stake here. That is why I think your questions are very, very well put.

Mr. Freeland. Mr. Chairman, if I might just add a word from the perspective of a private university. It is clearly the glory of American higher education that we have a public sector represented here by Bob Corrigan that provides such wide access to so many students from modest backgrounds. The private sector would not be able to meet this need were it not also for a very strong public sector.

However, there is a significant private sector role here also in assuring access to low income students, and I just tell you one fact about Northeastern University. Over this period of the last five years, which I was describing, in which tuition has increased, and costs have increased, and so on,

our number of Pell grant recipients has remained absolutely constant in the Northeastern student body.

So we have been able to find a way through these tuition subsidies to maintain a significant role for Northeastern University in serving low-income students. I did also want to comment on your question about the relationship between the pattern of federal policy toward student aid, and state policy, or indeed the policy of private institutions.

There have been studies done. The ACE could certainly make these available to the committee, if that would be helpful, tracking the relationship between federal student aid policy, and state, and private tuition policies over the long periods of time. These studies essentially show no clear relationship.

During the '90s, for example, as you may know, in Massachusetts, we were actually in the public sector reducing the price of tuition in order to maintain accessibility. Lamentably, that pattern has reversed itself now with the budget cuts in the state.

I can also tell you, from a private perspective, that in all of the discussions of tuition increases that I have been part of in my seven years as president of Northeastern, the question of federal aid policy has simply never come up. It is not a point of discussion.

The reason for that is quite simple. I think it would not be rational for us, and I think for other private universities to decrease our financial aid or adjust our price in relation to federal policy because we give much more institutional aid than we receive in federal aid. If we adjusted price for that reason, we would actually end up paying more in our own institutional grants.

Chairman Boehner. We are going to have to recess. Has the gentlelady voted?

Why don't I recognize the gentleman? Would you like to ask questions?

I will tell you what I will do. I would like to ask the gentleman from Virginia to come and take the chair until Mr. McKeon comes back. I know you are shocked.

Mr. Scott. [presiding] I will entertain a motion from the gentlelady. I will recognize the gentlelady for questions.

Ms. Solis. Thank you. I apologize for coming in late. But this is obviously a very important and timely hearing for many of us because of the crisis that we are seeing. I represent the state of California in the Los Angeles and East Los Angeles area, where we have a high number of minority students that typically do not have an opportunity to go into higher education.

Many that do go, attend local community colleges, but are not able to make that transition. This is partly, because of a lack of financial assistance. Many are working part-time jobs to maintain any kind of semblance of being able to afford to go to college.

I would be very interested in hearing what kinds of ideas you might have in helping to concentrate or focus on those populations that, for lack of a better term, are almost stuck at the two year community college level. Many also are not getting information about transferring and that path to matriculation, whether it be to a public or private institution.

I think over the last few years there has been a decrease in terms of percentage of financial aid dollars that should be made available, not so much in terms of loan, but Pell grant, work study, any other kinds of assistance, forgiveness loans, things of that nature, that I think are very important. I would be happy to hear from any of the speakers.

Mr. Winston. May I weigh in on that? This is not an area that I have paid a great deal of attention to, but close friends have and done it with a respect for facts and data that I respect.

Their deep worry is the shift in state and federal policy from exactly the students you are talking about, below income students who have been highly dependent on things like Pell grants to middle income programs like tuition, tax credits, the Hope scholarships, and the rest.

Now, to the extent that their feeling is informed, it is a criticism of what has been happening in federal and state policy in a shift of support withdrawing it from those people in favor of the middle class. Having made that bold statement, now I can duck behind the fact that it is they who have the data and not I.

Ms. Solis. I tend to agree with that comment because I have heard that in the state of California, some of our institutions have done some studies of merit scholarships that have been given over the last year years.

Those scholarships have increased and rewarded students that do academically well, but may not represent the underrepresented student populations that also need that assistance. Obviously, this is having an impact also in terms of their enrollment availability.

Mr. Freeland. I would also just add a word on this, Congresswoman, since I spent a good part of my time in the public sector, where I think many of these issues come up. I think one of the things that our system, national system of higher education does very well is serve students well at the two year level, serve them well at the four year level, serve them well at graduate school.

We do not do as well at working across the seams of those different levels. Many of us for years have argued that we needed to think of education in this country as a K through 16 system, with much more emphasis on helping students across the seam between high school and college, and between two year and four year institutions.

It is an unfortunate fact that the type of students that you mentioned have a much greater likelihood of completing a four year degree if they start at a four year public school than if they start at a community college, and then try to transfer.

So I think what we need to encourage--and there may be a federal role here--is the kinds of programs that Bob Corrigan talked about where colleges are connecting with high schools and

reaching out to pre-college kids, kid who do not necessarily think about college around the breakfast table with their parents because that has not been in their history. We need to encourage those kinds of patterns, and then encourage four year and two year institutions to work across that scene, so that two-year students are encouraged and helped and facilitated to get to the four-year level.

Mr. Corrigan. You know, I am not sure to what extent this is a federal problem, as opposed, at least in California, to a state problem. For the 14 years that I have been president of San Francisco State University, of the students that we graduate in May or June, at least 65 percent of them had started at a community college.

I think the brilliance of the California system is that there is a place for everyone. The whole notion was to do two years at a community college, and then go to the four-year institution and graduate. We have been doing that.

The problem in California right now is that the state has not kept pace with this population explosion. Before you came in, I was making the point that the intersection for me is between quality and access. The funds are there. For the underrepresented student to attend an institution in California, it is the space that we are lacking.

We are likely to grow--I said we were at 370,000 students. We are likely to go to 400,000 students in higher education in California. We have not built a new campus at the University of California since, who knows when. We have not been building new campuses of the CSU.

We have not increased the number of community colleges. I am not sure there is a role for the federal government there, but what we were saying earlier is that when the states do not provide the support, there is a tendency to look at the federal government.

I wanted to make another point, if I could, very quickly. Dr. Freeland made a very, very strong point about there not being a relationship between increases in federal financial aid and fees or tuition. I think that is absolutely the case.

I do not know of any institutions that sit around figuring out how much more federal money is going to become available, and then they can raise their tuition accordingly. That certainly is not true in California. Whereas, I pointed out, we have actually decreased our fees two years, each at 5 percent. We are charging less now than we were charging ten years ago in the California State University.

Ms. Solis. Mr. Chairman, I know the red light is on, but I just want to follow up with that question there.

Because, yes, in the state of California, we have done a really good job with community colleges, keeping all of the fees and tuition very low. In fact, they are probably the lowest than in any other part of the country.

But other costs, books, affordability to find housing, all those other incidentals have actually increased by, you know, who knows how much percentage points. And we are not making up for that compensation. Therefore, then the students need to go get a part-time job, or maybe two part- time jobs because financial aid is not sufficient.

I think that sometimes we do not think realistically, as well, in terms of planning for that. And that is just something else that I think should be addressed because those are questions that we get all of the time from our constituents about the lack of affordability to be able to go to college.

I mean they certainly enroll at a local community college, but then they cannot afford the $300 or $400 costs for each book, or each class that they have to take a course. And that is astronomical. So I think that we are not being realistic in terms of what we are actually providing students. Thank you.

Mr. McKeon. [presiding] Just before you leave--were you saying you are leaving? I have another hearing to go to, but I can stay. This question will be very brief.

What about Monterey Bay and San Marcos? Aren't those new schools?

Mr. Corrigan. Yes, Monterey Bay is new. It will not ever be able to enroll the number of students that they had anticipated in San Marcos as a new campus. But that is two new campuses of the CSU. We could easily use another four.

Mr. McKeon. I see. Santa Toledo would be a good spot.

Mr. Corrigan. I would like to emphasize your mentioning of Monterey Bay. Monterey Bay was the first campus in our system to actually contract with the local community colleges in a single admissions statement.

In other words, if you apply to the community college at the same time as you apply to Monterey Bay, you are guaranteed admission at the end of your two years, if you are admissible under Monterey Bay's admission criteria. You could make the seamless move.

We are trying to do the same thing in San Francisco. We actually have over 1,000 students who are concurrently enrolled at our local community college and at our institution. They are taking classes at both places.

We have students at Canada College down in San Mateo County that, in fact, are taking a full teacher education program down there, under our auspices. They do not have to travel to San Francisco to do it. They are doing it at community college fee rates, and not at the higher rate of the CSU. So there are examples, Mr. Chairman.

Mr. McKeon. That is what we have going on at the College of the Canyons. They have started their university center, where you stay on the same campus and they are raising the money now to build the building.

But they have already contracted with Cal State, Bakersfield, and some other schools. You can stay at the community college, but graduate with a university degree. You just move to a different part of the campus. There are a lot of creative things being done.

One of the things that disturbs me is what I hear from a lot of students. It is that colleges and universities used to take four years. Now it is taking five or more, and one of the reasons is that the students cannot get the classes they need.

What are you doing at the school level to address this problem? If it takes five years, it is going to cost more. If it takes six years, it is going to cost more. If it takes a week to register and you are the sixth day, and everything you need is already taken, it is a tough thing.

Mr. Winston. Can I jump in on that one? I think it is just inordinately important that if support per student goes down in a state, tuition has to go up, or costs have to go down. You have identified one of the most fundamental ways costs go down.

You cut costs by cutting the classes, by making bigger classes, by using T.V. and TA's instead of professors. These are the ways colleges and universities had first showed up eloquently with UCLA back in the early '90s, when there was a draconian cut.

All of a sudden kids could not graduate because they could not get the courses, because the courses were not offered, and because it was too expensive. You have identified one of the fundamental ways that a college under pressure, in addition to raising tuition, cuts costs by cutting courses. It is important to underline that.

Mr. McKeon. One of the things they are doing is cutting core classes and keeping some of the fringe classes. You can get classes, but you cannot get the ones you need to graduate. I hope that will be addressed. I am sure that is something that will be talked about.

Let me bring up another subject. Do you think loan limits for students should be increased? We have a limit now on how much a student can borrow through the government programs. Should that be increased?

Mr. Freeland. I can tell you that the loan limit, as I understand it right now, and I am not a financial aid expert, but my understanding is it is $23,000, in terms of federally subsidized loans. Many students in private institutions end up going to alternative loan sources and borrowing beyond that subsidized limit.

Mr. McKeon. Generally, they have higher interest rates.

Mr. Freeland. Yes, they are at higher interest rates. That is right. So I would think there is that strong prima facie case for considering increasing that $23,000 limit.

Mr. McKeon. Dr. Freeland, you raised tuition rate by 10 percent this year, by 21 percent over the last three years. How do you explain that to parents and students?

Mr. Freeland. That 10 percent number is not accurate. I know there has been some confusion about this. We actually raised tuition this past year 6.5 percent.

Mr. McKeon. Is the 21 percent over the last three years accurate?

Mr. Freeland. It is 30 percent over the last five years, in terms of sticker price--20 percent over the last three. It is a little high.

Mr. McKeon. But that number is much higher than inflation. How do you address that to students and parents?

Mr. Freeland. I think two things, Mr. Chairman. One is that the rate of inflation, as you know, is set by the Bureau of Labor Statistics. I believe it is based on a mix of costs that are very different than the mix of costs you have in college.

I mentioned the chief cost drivers and our cost increases over the last five years. They are salaries which are in the high tech-oriented field, scientific engineering, health science fields, have themselves gone up much more rapidly than the rate of inflation.

Mr. McKeon. What percent have the salaries gone up?

Mr. Freeland. I can tell you, for example, that to recruit an electrical engineer today, or to recruit someone in computer science, or to recruit someone in accounting or finance is difficult. These are high demand fields where faculty members have corporate alternatives. People with Ph.D.'s in these fields do not need to go into higher education, the way people like myself in history do. Those salaries have gone up by factors of 50 percent.

Mr. McKeon. In five years?

Mr. Freeland. Over the last five years. And those salaries remain well below their corporate counterparts. So we have trouble recruiting talent, even with those kinds of increases in those fields. Those happen to be fields in which Northeastern is concentrated.

Mr. McKeon. Is that one of the areas you commented about using part-time instructors? Is this how you have offset some of that?

Mr. Freeland. We have what we call non-tenure track faculty, which is maybe a term of art here, but what that describes is faculty members who are hired full-time primarily to teach. They do not have the full range of scholarly responsibilities of other faculty members.

There has been a shift at Northeastern, and at many other institutions, toward those kinds of faculty members because the salaries are somewhat lower and they teach more. In addition to that, there has been more use of part-time.

Mr. McKeon. How long does it take?

Mr. Freeland. Pardon me?

Mr. McKeon. How long does it take to get tenure?

Mr. Freeland. Typically, six years. A tenure decision is typically made in the sixth year. This increased reliance on part-time faculty and non-tenure track faculty really is a compromise between quality and cost. If it goes too far, it is going to erode quality throughout the system. It is not something we would want to make as a core solution to the cost issue.

Another big driver of our cost, I should mention, is technology. I think the committee is well aware of what has been happening with technology prices. A three-year-old computer on a faculty member's desktop is starting to be an obsolete computer.

Mr. McKeon. Three years?

Mr. Freeland. Three years.

Mr. McKeon. I was thinking about two.

Mr. Freeland. Yes, fair enough. These cost cycles are really very different than what drives the general cost of living.

Mr. McKeon. Thank you. My time is up. Mr. Scott.

Mr. Scott. Thank you, Mr. Chairman. We have heard a lot about the importance of K through 6. I think we have to make sure these opportunities are available.

Dr. Freeland, you mentioned the importance of getting people in the pre-college years. Have TRIO and GEARUP been helpful?

Mr. Freeland. We have had a good experience with GEARUP. My understanding around the country is that GEARUP has had somewhat mixed reviews nationally, but Northeastern is heavily involved with that program. We are deeply committed to what it represents, and we have had generally good experience with it.

Mr. Scott. Upward bound?

Mr. Freeland. It is similar. You understand, and I am sure committee members do, that there are so many young people who do not grow up with the notion of college as an option. Unlike the kinds of young people who go to Williams, for example, who probably never think about not going to college, for many young people this is an alien world.

It is a somewhat frightening and forbidding world to their parents. It remains frightening unless institutions of higher education reach out and break down that forbidding barrier, bring the students onto campus, give them pre-college experiences, run summer programs, and help them understand that they can do it. So many of them can. They will never get there themselves

psychologically.

Mr. Scott. Now what impact would a $400 reduction in Pell grants have at Northeastern?

Mr. Freeland. Northeastern, I think, like many private institutions, does not have a large number of Pell grant recipients. I mentioned the number. It is about 2400 Pell grant recipients in our 13,000 undergraduate student body.

A $400 reduction for those kinds of students would probably mean, quite honestly, that we would increase institutional aid to have them because these are students that we very much want.

Mr. Scott. Many people at Northeastern work their way through college. How many hours a week do they have to work?

Mr. Freeland. There are two things about work at Northeastern. One is that our students alternate periods of full- time paid employment with full-time study. It is a five-year program. In their four upper class years, they spend 50 percent of their time, two of four quarters, in full-time paid employment. But most of our students are working, in addition to those co-op salaries.

Mr. Scott. When you are not on co-op, how many hours a week do they end up working?

Mr. Freeland. These would be very rough estimates. But I think the numbers show that most students work between 20 and 30 hours a week, and many work more than that.

Mr. Scott. Is there considered a limit to the number of hours a week someone ought to work before it starts eroding his or her academic standards?

Mr. Freeland. It is something we agonize about in higher education. I think most faculty members, most educators would say being a student is a full-time job. To work more than a modest number of hours a week--work-study students might work 10 hours a week or so, that can be fine.

But when you are working 20, 30 hours a week and trying to be a full-time student, you are not having the kind of full educational experience that produces the best result. I think, particularly in public commuting institutions serving low-income student bodies, which most educators regret very much that the amount that students have to work creates a serious compromise in the quality of their experience.

Mr. Scott. You mentioned professor pay. Did I understand you to say that the mix of faculty tends to be growing in the high demand areas, and that the English professor's salary may not be going up as much? But you have more of the high tech employees that start at $50,000 and more.

Mr. Freeland. I think that is fair to say, and I believe it is true at many institutions. It is particularly true at Northeastern, which is heavily focused in science and technology. But all over the country, the life sciences are growing, driven by the revolution of molecular biology.

Students want to take courses that lead, one way or another, into the health care system. The competition for talent in that world is fierce. We compete with the pharmaceutical industry for molecular biologists. That is driving it up. We compete with the high tech industry for computer scientists and electrical engineers.

These patterns are not confined to a place like Northeastern University. There is a huge difference between the pressures on fields that students are flooding into where they see job opportunities, and fields that are the more traditional academic fields where faculty members do not have other choices.

Mr. Scott. Thank you. Mr. Chairman, I had a question for the gentleman from the public colleges. But since they have both left, I would like to ask unanimous consent to enter into the record a copy of the Washington Post article from this morning that outlines budget cuts in the Commonwealth of Virginia, many of which will fall upon the colleges and universities.

WASHINGTON POST ARTICLE SUBMITTED FOR THE RECORD BY REPRESENTATIVE ROBERT C. "BOBBY" SCOTT, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C. – APPENDIX F

Mr. McKeon. No objection, so ordered.

Mr. Scott. Yield back.

Mr. McKeon. Mr. Tierney.

Mr. Tierney. Thank you, Mr. Chairman. I was wondering if each of you gentlemen would address this fact. We have talked about the ways that we are financing education, such as endowments, earnings and investments, tuitions in the public schools, some public resources, and then all across the board some federal and state scholarship aid, and a lot of financial aid.

How might we change the way that we finance higher education, so that the sticker price more accurately reflects the actual price?

Mr. Winston. Do we want to do that?

Mr. Tierney. I do not know. You tell me.

Mr. Winston. I would think that one of the last things we would want to do in interest of access would be to make the sticker price reflect the actual cost. My figures for national figures way back in '95/6, that it costs $12,400 a year to create an education for which a student now pays $4,000. It is not at all clear to me that we would like to raise that price the student pays from $4,000 to $12,400. In general, I am reluctant.

Mr. Tierney. I am looking at it the other way. Why wouldn't you lower it so that a student going in would not face the $36,000 number up there so that they actually looked at what the actual cost

of it was going to be to them, the $4,000 number.

In other words, students apply to college and all they look at is that their parents need $37,000 a year to go to such-and-such an institution. You are going to tell me that is not really what the price is, and that in the end it is a whole lot less?

Mr. Winston. I think it is terribly important to sort out what we are talking about. If we are talking about the cost of producing a year of education, let me use Williams because I know the numbers.

It costs $75,000 per year, per student, to produce that education. These are a rarified atmosphere, but it is not different from a whole lot of very, very high quality private schools. The student paying the sticker price for that education pays $33,000. The average student pays $24,000.

Now I am not sure which of two questions you are asking. Why don't we charge them $75,000 a year? I think that would be a disaster. Is the question, why don't we make it clear to them that they on average are going to pay $24,000?

Mr. Tierney. That is the question. Right.

Mr. Winston. That is exactly why we did the study that I alluded to, looking not just at the general question, what does the average Williams student pay, but what does the Williams student pay who comes from the bottom 20 percent of the income distribution, whose family makes less than $24,000 a year? We came up with the, I think, gratifying number of $1,683.

Now one of the things we want to do is publicize this as well as we can--not for Williams. That is obviously not the point. But publicize the fact that these highly selective, highly expensive colleges are in fact dirt cheap to the kid who can qualify, and who comes from a low-income family. I think it is a terribly important fact.

Mr. Tierney. I do not think we are doing that, do you?

Mr. Winston. No. Well, to be quite honest, and there is a little sort of self-congratulation to this, and I am sorry, but I do not think we knew it. The press loves to take Harvard's sticker price and divide it by the median family income, which, of course, is silly because no one making the median family income pays the full price at Harvard.

If Harvard costs $35,000 a year, the actual price that kid, coming from a family with a median income, is going to pay will be $15,000, or something similar? I do not know Harvard's numbers.

Yes, there is a great deal of misinformation because in no small part we all focus on sticker price. That is the only thing we see, ignoring the fact that massively, relatively very few kids pay the sticker price. This occurs for one reason or another, either because of access and low-income charity, or because of trying to induce better students to go to the school.

Mr. Tierney. Thank you.

Mr. Freeland. If I might just add a word, because this as you know was a major theme of the National Commission on College Costs that the general public just did not understand this distinction between sticker price and actual paid price. It probably sets up barriers to higher education, which simply do not need to be there. It is purely a matter of information.

The thing the committee might well think about, and maybe in some way partnering with an organization like the ACE, would be some sort of national campaign to make people aware of what is actually out there, in terms of opportunity to go to college because it is far greater than people generally realize, even at private institutions.

The other point I would make, Congressman, is in terms of the relationship between the sticker price and the net price. A thing which would somewhat narrow that gap--maybe not so much in places like Williams, which are heavily endowed, but for most private universities, would be to give financial aid in the form of tuition discounts.

Institutions like Northeastern that want to maintain access to low income students end up doing it through tuition discounts. What that means is that there is a cross-subsidy between students who can pay the full amount and students who cannot.

The more support the Federal Government provides for low income students through Pell grants, and guaranteed loans, and others to have access, the less that pattern of cross- subsidy becomes necessary to maintain access to private institutions.

Mr. Tierney. Thank you.

Mr. McKeon. Ms. Woolsey. We did not have it down that way, but that is fine. Ms. Rivers.

Ms. Rivers. In the time that I have been here, I have served on the Science Committee, the Education and Labor Committee, and the Budget Committee. The issue of college tuition comes up often. As someone who represents a district with three universities, I have a pretty good understanding of how the whole system operates. I am always shocked by, first, the sort of anti-intellectualism that exists in Congress as a decision making body.

Secondly, I am shocked by this idea that the cost associated with getting an education is way out of line; that colleges and universities are gauging, and that professional staff at universities are slackers who are not working very hard and get very high salaries. This idea has gone on for a very long time.

My question is two-fold: First, what can supportive members of congress do? Secondly, what can colleges and universities do to help decision makers understand what it actually costs?

I think most people are unaware that $75,000 is spent per student at a top university each year. I am very concerned that a lot of decisions are being made out of ignorance. In all of my

time in public office, I have heard a lot of hollering, and have seen a lot of table pounding that somehow tuition rates have to be dropped, tuition rates have to be constrained. They are always predicated on this idea that there is something illegitimate about what people are being asked to pay for an education.

Mr. Winston. Let me address that question because I think it is a critically important point, and it goes to where we are as economists trying to understand this exceedingly odd industry. The basic answer to your question, ``why wasn't this widely known?'' is we did not know it.

Ten years ago, people--economists were only beginning to study carefully higher education. It was like studying the economics of a church. It just was not being done. Now it is being done. Maybe my 10 years is selling people short who were working very hard 15 years ago.

One of the most fundamental discoveries is how much it actually does cost to produce this education. Personally, I found it stunning to move from a single college that spends a lot, to national data, and find these numbers are way, way more than I expected. I am an economist who has lived in higher education for more years than I will admit.

I would like to congratulate the committee for creating, prodding the National Commission because that was one of the vehicles through which this kind of fact first really became widely recognized--that is too optimistic--became widely publicized. I do not think people have yet absorbed it, and I think it is critically important.

Mr. Freeland. I would just maybe repeat again that I think that is actually an excellent case and point because the National Commission did a careful study of this, and ended up focusing tremendously on this distinction between sticker price and net price. The Commission pointed out that the actual price of attending college was far, far below what most people thought it was.

If you did polls asking people what they thought it was going to cost, they would give an egregiously wrong number. Yet, despite that emphasis in the National Commission Report, we have not seen the kind of broad public information program that could make people aware of this, or start to influence people who do not have wide access to this information, such as in the district that the congresswoman from Los Angeles talked about.

I would say again there is tremendous importance of using the federal pulpit, the federal leverage, to make people aware of this fact.

Ms. Rivers. Well, I think it is not just an issue for decision makers. I think it is really an issue for colleges and universities.

One of the very frustrating things for me as I operate on my campuses, is that I have people associated with the university, who live on NSF grants or NIH grants, who tell me they are much too busy to explain to the public what they do. They are much too busy to vote.

They are much too busy in their labs doing all kinds of things, and then they wonder why they are being vilified or their research is being depicted on Rush Limbaugh or somewhere else as

being irrelevant, and stupid, and a waste of money.

It strikes me that the university communities are going to have to take some responsibility for this, explaining what it really costs, what is really going on university campuses, exploding some of the myths. The best one is that students are somehow subsidizing research, and they are being gauged to keep people working out of the classrooms, which is not true.

But there are lots of problems that just seem to continue and to fester over time, and the universities are not addressing them. I think they have to.

Mr. Freeland. I think that is a fair point. We work very hard through our admissions outreach and other public information programs to make people aware of this. We would not have the kind of Pell grant recipients in our applicant pool that I described if we did not make it clear that the sticker price is different from what you are actually going to pay.

But there is no question that we could do a better job in interesting faculty members in participating in this discussion as a challenge. I share that. One of the things that is most interesting in the context of your comment is that it is a little bit like medical care.

Most people would say they are pretty well satisfied with their own doctor, and they are pretty well satisfied with the college they went to, and they think they got a good deal. Somehow elsewhere, the system is not working properly. We need to do a much better job of reaching out in the way you have described.

Mr. Winston. Can I weigh in just briefly on that? In my written remarks and when I opened, I really underlined the degree to which common sense and economic intuition mislead us in this very, very odd industry. In a way, I was kind of lecturing that you all should shape up and realize this difference.

Only recently are we shaping up and realizing the difference. This is complicated material. We cannot map over from the local Ford dealer to talk about a university. It is just a fundamentally economically different animal, and we are only now figuring it out.

So I guess I am asking a little patience, and a little support for us while we are learning. I think that process is going rather well, but it is slow.

Mr. McKeon. Actually, it is kind of like going to the local Ford dealer. There is a sticker price; and then, depending on how you can negotiate, there are different prices. There are more similarities probably than differences.

Yes?

Mr. Winston. In my written remarks, I had three different automobile dealer illustrations, and I cut them out in the interest of five minutes. But it is comparable to going to a Ford dealer if the Ford dealer took that car that was worth $20,000 on the showroom floor, and sold it routinely for

$7,000.

Mr. McKeon. Right.

Mr. Winston. Then you have got a car dealer parallel.

Mr. McKeon. You mentioned that in your statement. What I was getting at is that there are lots of different airlines. You board the airplane and you sit next to somebody that paid more or less, but nobody knows. It is all different.

We have lots of schools in this country, and there are lots of differences. If we had 1,000 representatives from schools, we would have a lot of differences. This is not my time. Excuse me. Ms. Woolsey.

Ms. Woolsey. It is my time, Mr. Chairman.

Mr. McKeon. You have four minutes left.

Ms. Woolsey. Believe me he means it. Thank you. I am so sorry I have not been here for this entire discussion, but you already have all of my thoughts going in my head. I hope I am not asking a question somebody already has.

My question is about community colleges. Community colleges are considerably less expensive as a way to fulfill the first two years of an education to enter a four-year university or college.

So do you recommend that young people attend two-year colleges, get their degree, and then go forward, or not. Is there a stigma attached?

Mr. Freeland. Although I am president of a private university now, as I mentioned earlier, perhaps before you came in, Congresswoman, I have spent a lot of years in the public sector. I would encourage many young people to go to community colleges first.

Community colleges have a superb record of working with young people who did not have a lot of advantages in their background, and really focusing in on helping them maximize their academic potential.

By and large, community colleges are really better at that than four-year schools. It is not good public policy for four-year, public universities to be spending a lot of resources on that job, which can really be done better at the community college. I would very much encourage many students to start there.

That being said, many resist it. They resist it for rational reasons, for another fact that I mentioned, which is that it is not always so easy to make the transfer from community college to four-year college. We have what we call articulation agreements.

President Corrigan mentioned some of them, where students who graduate with satisfactory records from two-year colleges are guaranteed admission to four-year schools. We have such articulation agreements with community colleges as a private university.

But there exists within the system, and I think it is a fair point, and it exists within the faculty, quite honestly, some bias on this question that students who start at community colleges may not be quite as strong as our own students.

I found this even in public four-year institutions. That is why I am very strong on the point that we need to think about a K through 16 system in which students move across these scenes with much less difficulty, and much greater collaboration between faculty and administrators at the different levels.

Ms. Woolsey. Well, does it make a difference which community college?

I know I represent the two counties north of San Francisco across the Golden Gate Bridge. We also have Marin Community College in Marin County, and we Santa Rosa Community College in Sonoma County.

Santa Rosa Community College has one of the best reputations, if not the best, in the state of California. I think the four-year colleges gobble them up. Marin is a great community college. But because it is such a high-income area, so many of their students go immediately from high school to a four-year or a private university that people look at it differently.

So does the reputation of the college matter?

Mr. Freeland. Of course it does, because admission counselors know these things.

Ms. Woolsey. Okay.

Mr. Freeland. They know good high schools. They know good community colleges. They know the ones where students come out well prepared. They know the students who do well in the four-year programs. They make these kinds of judgments absolutely. That needs to factor in, of course, to the advice you would give to a young person as to where they would attend.

Ms. Woolsey. I want the other gentleman to answer it too. We have to factor in support for community colleges; so that they actually can fill that gap in a meaningful way, so it is a lot less expensive for the students and their families. You, sir.

Mr. Winston. When Dr. Corrigan was here he put in a highly justified part for the California system in having levels that assure a broad range of access rather than just running a flagship four-year university, research university, and letting it go at that.

I think that has proved out over the 45 years since the California master plan?

I think you are quite right that the support at each level is very important to access and to access to quality.

Ms. Woolsey. I am sorry I missed him. I preceded him on another committee, and he is now a witness following me on the same subject that we are supporting. Two of my four children graduated from his college.

I also have Sonoma State University. In California we do not have colleges anymore other than community colleges because of the stigma. Our state colleges now are state universities because there is a stigma in not having a college, not being called a college.

For the life of me, I think that is going backwards. But we had a college, that now is a university, that has gone from Sonoma State University, called the--no surprise here, Mr. Chairman--the Granola College, and where everybody supposedly majored in frisbee throwing to now one of the best colleges or universities in California on environmental issues and on high tech and economic issues and subjects.

So the pressure of the community, and the needs of the community, if the college or university will listen, if that entity will meet those needs, then everybody wins.

Mr. Freeland. One of the beauties of American higher education is that it is, at the end of the day, a competitive system, even in the public sector. So, for institutions to survive and to flourish they are compelled to match what they want to be with what the communities around them need and will support.

I think that does end up producing just the kind of evolution that you described, in which ultimately the requirements and opportunities in the external environment drive institutions to try to match their commitments and resources to that.

Ms. Woolsey. Right. Thank you, Mr. Chairman. I over-spoke. I am sorry.

Mr. McKeon. We all do. Anyway, thank you. I want to thank the witnesses. I want to thank the members for participating today, especially thank you for staying over an extra day. I apologize for what happened yesterday, but appreciate your doing that.

As we move forward in reauthorization, this will be an important subject. I hope you will stay close and make your expertise available to us. If there is no further business now, the committee stands adjourned.

[Whereupon, at 11:02 a.m., the committee was adjourned.]

APPENDIX A -- WRITTEN OPENING STATEMENT OF CHAIRMAN JOHN A. BOEHNER, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C.

Statement of the Honorable John A. Boehner
Chairman
Committee on Education and the Workforce

Hearing on the Rising Price of a Quality Postsecondary Education: Fact or Fiction

Wednesday, October 2, 2002

Good Afternoon,

I'd like to take a moment to welcome our witnesses, and to thank them for appearing before the Committee.

We are here today to examine the effects the increasing cost of a postsecondary education has on students and families. As we approach the upcoming reauthorization of the Higher Education Act, it is important for every member of this committee to understand what is really happening with tuition prices, what factors influence tuition increases, and what we can do at the federal level to try to keep college affordable for students across the country.

Since the early 1980s, tuition and fees at postsecondary institutions have outpaced increases in the rate of inflation and family incomes. Each year, these cost hikes have been two-to-three times the rate of inflation. While we have continued to

increase student financial assistance significantly every year, tuition spikes have outpaced our best efforts to stem this trend.

When we return to our districts, many of us hear from parents and students about their worries over funding a postsecondary education. It concerns me that at a time when we make available far in excess of $50 billion a year in federal student financial assistance, not to mention the billions of dollars spent by states, philanthropies, and colleges and universities themselves, parents and students are afraid they won't be able to pay for college!

Last year, under the rate cut formula negotiated by Chairman McKeon as part of the 1998 Higher Education Act reauthorization, the federal student loan rate fell to its lowest level in history. Since 1995, we have significantly increased our aid for postsecondary education. More students are receiving more federal support than ever before. We have increased the maximum Pell to historic highs. The Pell Grant program is our highest priority for postsecondary education, and since 1998, the maximum grant has increased by 33 percent. The SEOG program, which provides supplemental grant aid, is also at an all time high of $918 million. College Work Study, which helps needy students earn while they learn, has been increased to $1.2 billion per year, and the list goes

on. These programs are often the only hope low-income students have to achieve their dream of obtaining a higher education

Unfortunately, tuition increases have exceeded even these significant gains. Since 1981, the average tuition at public and private non-profit institutions more than doubled after taking inflation into account. During that same time, family incomes only increased 27 percent in real terms. Given these statistics, it is easy to understand why families have real concerns about how they will pay for college.

I am especially concerned for low-income Americans who might not understand that financial assistance is available. These potential students often come from families with no college background and they are the least likely to know about or understand the financial aid process. They are also the least likely to understand that there are still some affordable options for a quality postsecondary education. I am afraid that, when potential students such as these are told that a year of college will cost in excess of $20,000, they may just give up.

Next year, we will reauthorize the Higher Education Act. As part of that process, we will conduct a comprehensive review of our student financial assistance programs, determine what works and what needs to be fixed, and assess how we can truly ensure that every American has access to a quality postsecondary education. This hearing will provide important information on one of the biggest hurdles to access -- the increasing costs of higher education -- and provide valuable insight into this issue. I look forward to hearing from our witnesses.

APPENDIX B -- WRITTEN STATEMENT OF DR. ROBERT A. CORRIGAN, PRESIDENT, SAN FRANCISCO STATE UNIVERSITY, SAN FRANCISCO, CALIFORNIA

Testimony of Dr. Robert A. Corrigan

President, San Francisco State University

Before the U.S. House of Representatives

Committee on Education and the Workforce

October 2, 2002

Chairman Boehner, Ranking Member Miller, Representative McKeon, and distinguished members of the committee, thank you for this opportunity to testify this morning. My name is Robert Corrigan and I am the president of San Francisco State University, a 28,000-student public, urban university located in the city of San Francisco. We award undergraduate degrees, master's degrees and offer several joint doctoral programs with other institutions. Our university is a part of the 23-campus California State University (CSU) system, the largest university system in the country, currently serving more than 370,000 students.

CSU Commitment to Affordability

San Francisco State University (SFSU), like the CSU system itself, sees its mission as providing a high-quality, broadly accessible education to the students of our diverse state. A key element of accessibility is affordability, and so, as a part of this mission, the campuses of the California State University have made a commitment to keep student fees as low as is consistent with quality.

This commitment has enabled us to attract – and to graduate – a very diverse population of traditional and non-traditional students. Let me give you a quick sketch of the students the CSU serves:

- The CSU is a majority-minority university system. Overall, 53% of CSU students are people of color. At San Francisco State, that figure is closer to 70%.
- The average age of our undergraduate students is 24
- About one in five is a first-generation college student
- Two out of five come from homes where English is not the main language spoken
- Forty-four percent are not supported by their parents.
- Nearly two in five have dependents themselves
- Four out of five have jobs, and 36 percent work full time
- About half of our students receive financial aid --46% at SFSU.

Our low fees represent a key component of our ability to provide educational opportunity to these students.

Student Fees at the CSU

For the current academic year, the CSU charges a system wide fee of $1,428 for full-time undergraduate students who are California residents. This fee is made up of what is usually called tuition and fees in other states. Added to this are campus-based fees for local services such as student health facilities and services, the student center, student activities, and the like. These fees vary slightly by campus, but average around $500. At San Francisco State, the

campus fees total $398, which means that our students pay a total of $1,826. The CSU system wide average total fee for 2002/03 is $1,926 – less than $2,000 for a full year of university study.

This is an astonishing educational bargain. To provide some national perspective, when evaluated side-by-side with our 15 comparison institutions across the country, California State University fees for resident undergraduates are the lowest in the nation. Comparison data for 2002/03 are not yet available, but for 2001/02, the CSU's average total fee (the system wide fee plus the average local campus fee) of $1,876 was far below the $4,168 average of our comparison institutions. In addition, our average total fee had increased only 2 percent – all for campus-based fees -- above the previous year. That was among the lowest percentage increases of any of our comparison institutions, and far below the 7.7% national average increase for all public institutions, as reported by the College Board.

The CSU's state university fee has not gone up for eight years. In fact, this fee was decreased by 5 percent in 1998/99 and again in 1999/00. This year marks the fourth year in a row that the system wide fee has been held at $1,428.

While we are very proud to have maintained these low fees in comparison with similar institutions, our students live in one of the nation's most expensive cities. So the costs that they face for such necessities as housing, food, health care, transportation and insurance add a great deal to the cost of getting an education at SFSU. There is very little we can do to lower these costs facing our students.

Maintaining Low Fees

How has the California State University managed to maintain its historic affordability? One major explanation is a partnership funding agreement between the Governor of California and the state's two university systems – the CSU and the University of California. The funding provided by the state of California to the systems under the partnership has allowed us to keep fees down -- far below the actual cost of instruction.

The current partnership, reached with Gov. Gray Davis and our universities in May 2000, is similar to the earlier agreement our universities had with his predecessor, Gov. Pete Wilson. That agreement assures the CSU of a certain baseline level of funding. In return, the University commits to deliver certain educational outcomes. The funding requests we make under this agreement require legislative approval each year, which we have received.

The partnership provides for a total 5 percent increase to the CSU's General Fund base, each year, plus full marginal cost funding for enrollment growth. The partnership agreement further provides that the CSU's state university fee can increase annually by the percentage change in the California per capita personal income. Through this partnership, the state has, in effect, "bought out" annual CSU fee rate increases.

However, the CSU and its campuses still need to find ways to keep the cost of operation low. We have developed a number of strategies to reduce costs and operate efficiently, while maintaining quality and access. A recent major undertaking has been the system wide move to year-round operation. By greatly expanding course offerings, creating a true "summer

semester," we are able to significantly increase our enrollment capacity, without the huge capital costs of constructing new facilities or even new campuses. Our summer semester also allows students to accelerate time to degree – a significant fiscal saving both for them and for the University system.

Although keeping pace with constantly changing technologies requires significant financial investments, the CSU and San Francisco State are making great use of the new information technologies to reduce costs in the long run through distance education. Again, we achieve two ends: fiscal efficiency and greater service to students who for reasons of geography or personal circumstances cannot come to campus. Another successful application of technology is the CSU Mentor program, which two years ago won an Academic Excellence and Cost Management National Award. CSU Mentor is an online resource which helps students, parents, and counselors learn about the CSU, plan for college --- starting as early as middle school, learn about financial aid, get pre-admission counseling, apply and do much more – providing a high level of service without additional staffing.

Another exceptionally successful new approach is partnering with local community colleges in joint use projects. To offer one example, last year, San Francisco State launched a joint use program with Cañada College, a two-year institution about 45 minutes outside San Francisco, whose facilities were seriously underused. Through our "Pathways" project, San Francisco State now enables students to complete some four-year degrees, as well as teacher certification, on the Canada campus. We are now working with our near neighbor, San Francisco City College, to develop a joint use building that will house programs in early childhood development, health and workforce training.

Early intervention programs, which reduce the need for University-level remediation, are another key component of California State University cost savings. The GEARUP program, that focuses on middle school achievement, and such campus-based programs as San Francisco State's "Step to College" program for high school students in under performing schools provide early support and guidance for students so that they are better prepared when they reach us. This frees up academic resources that would otherwise go into extensive remediation courses.

Importance of Financial Aid

Even with low fees, financial aid remains a critical component of our ability to serve a diverse student population. Financial barriers continue to be very real obstacles to a college education for many of our students despite federal, state and institutional aid. The extraordinarily high cost of living in the Bay Area and other large California cities is one component of the increased cost of attendance. But transportation, childcare, and housing are issues statewide. Even with some of the lowest student fees in the nation, the California State University has tens, even hundreds of thousands of students dependent to some extent on financial aid.

At SFSU, almost half of our students receive financial assistance. Despite low fees, the amount of unmet need that is, expenses students face even after financial aid is factored into the equation -- amounts to almost $30 million per year Our average financial aid award is $8,941 even though our fees are around $2,000. The actual cost of attendance including housing, books, transportation and other living costs is approximately $12,000. This is money that students must still find. They will do so by borrowing more money than we would like from private loan

programs, by working longer hours than they should, by enrolling part-time rather than full-time, by taking entire semesters off and stretching out the length of time it takes to get their degree, or by maxing out credit cards. None of these are desirable choices but I am sad to tell you that some of our students must make them every day.

I present these figures to highlight the need for the federal government to continue increasing financial aid and investments in other higher education programs. We urge you to increase the Pell Grant maximum award levels, increase funding for SEOG, and Work Study. Our students would also benefit from a change in the Pell Grant program to allow for more flexibility in how Pell Grants are awarded. A huge cost confronting low-income students in getting an education is the foregone income they face while they are in school. Unfortunately, current federal policy makes it harder for low-income students who want -- for good economic reasons -- to accelerate their education. San Francisco State and the CSU --with its nontraditional students and burgeoning enrollment-- needs this flexibility more than anyone. We would also like to see increased funding for GEARUP and TRIO, which help reduce our remediation costs, and the for the "Child Care Access Means Parents in School" program. These federal investments pay off many-fold, as students are then able to stay in school, move along more quickly, and graduate.

I know that there is somewhat of an "urban legend" which claims that more student aid simply encourages colleges to increase the fee that they charge students. I can only tell you that there is absolutely no truth to this and the CSU system provides an excellent example. Simply look at the record of the last decade. In the 1990s, especially the late 1990s, federal need based student aid increased sharply and the federal government enacted a number of tax benefits – such as the HOPE and Lifetime Learning Tax Credits -- to help families pay for college. State student aid

also increased during this period. Yet, as I noted at the beginning of my testimony, the CSU State University Fee has not increased in 8 years and, in two years, it was actually reduced 5%. Surely if there was a relationship, we would have seen some evidence of it in recent years in California.

More personally, I have been a university president for more than 20 years, 14 at SFSU and 8 before that at U Mass Boston, a school with a student population similar to that of SFSU. In those years, I have participated in literally hundreds of decisions about tuition. I can safely say that the subject of increasing tuition because of an increase in federal (or state) student aid has never been raised. Schools such as SFSU and U Mass Boston exist to provide a high-quality education at the lowest price possible. Any increase in tuition is a cause of concern and something that we want to avoid.

Costs Are Rising

However, when we talk about what a student pays for an education at San Francisco State or at another CSU campus, it is important to make a distinction between price and costs. The price is the total amount that a student pays to attend the university. The cost is what the university actually needs to spend to provide the education.

It costs the CSU more than $10,000 annually to educate a student. Of that amount, the state pays 70 to 75 percent, in-state students pay 18 to 20 percent, and the rest comes from other sources such as private donations.

the issue of student fees from the politics of good budget years versus bad budget years, and it would give students and their families greater predictability about college costs.

Of course, these decisions and any future considerations about student fees will be made within the context of the CSU's commitment to provide access and affordability for California's students. The CSU leaders and I are all reluctant to see fees increased but when the state, which provides such a large share of campus operating costs is facing an unprecedented financial deficit, public higher education is very likely to be affected. We have our backs up against the wall in California. Your advocacy at the federal level to increase funding for student aid programs is all the more critical now to assist us in maintaining the college affordability for our students.

Finally, I would like to extend an invitation to the committee to visit our campus and consider the possibility of holding a field hearing. That way you can see first hand what challenges our students face and what sacrifices they make on a daily basis to make their educational goals a reality.

Members of the committee, I thank you for taking the time to consider my testimony this afternoon. I will be glad to answer any questions you may have.

APPENDIX C -- WRITTEN STATEMENT OF C.D. MOTE, JR., PRESIDENT, UNIVERSITY OF MARYLAND AND PROFESSOR OF ENGINEERING, GLENN L. MARTIN INSTITUTE, COLLEGE PARK, MARYLAND

FINAL DRAFT

October 2, 2002

Statement of William E. Kirwan, Chancellor
University System of Maryland
before
Committee on Education and the Workforce
U.S. House of Representatives

Mr. Chairman, members of the Committee, thank you for the opportunity to testify today. I want to commend you, Mr. Chairman, for the series of hearings you are holding in preparation for next year's consideration of the reauthorization of the Higher Education Act.

I am William E. Kirwan, chancellor of the University System of Maryland (USM), a position I assumed on August 1 of this year. I served as president of Ohio State University from 1998 until my appointment at Maryland. From 1989 to 1998, I was president of the University of Maryland, College Park, where I had been a faculty member for over 30 years.

Mr. Chairman, the subject of today's hearing is very important. Higher education is the ladder of opportunity in our country, and, as vital as a college degree is in today's knowledge economy, its importance will grow exponentially in the years ahead. The benefits of a college degree are many, but let me give you just one small statistic from a USM economic study, which has tracked the actual earnings of the USM's 1986 graduating class. In 2000, the average earnings of 1986 bachelor's degree recipients were $51,397, $26,225 more than a person with just a high school degree.

Education leaders and policy-makers at the state and federal levels must do everything in their power to ensure that higher education, and the opportunity for a better life, is financially accessible to all potential students.

In examining the cost of tuition, we must remember that most families and students don't pay the full amount listed by a college in their viewbooks and catalogs - - in fact, many pay far less. In 2001 more than 40% of full-time undergraduate college students paid less than $4,000 a year in tuition and fees after financial assistance programs were taken into account. This doesn't mean that there is no affordability problem, but the true extent of the problem can be determined only by using the real cost of tuition.

I'd like to address two related points in my testimony:

1. How the cost of tuition is determined, meaning the factors that drive the tuition decision; and
2. Who determines the cost of tuition at public colleges and universities.

When an institution determines what it will charge for tuition, it considers a number of variables. The degree to which these items influence the price of an institution will vary from year to year and are commonly referred to as the "cost drivers" in higher education. Particularly in the public sector, an institution has little or no control over many of these drivers.

1. State Appropriations

Most American college students (80 percent) attend public colleges and universities that depend, to varying degrees, on state appropriations. For most public

institutions, their state appropriation is the most significant variable driving their tuition decisions.

In the last 20 years states have systematically reduced their support for higher education and as a result, tuition increased. At the end of the 1990's, a decade of state budget cutbacks, the balance of funding responsibility has fundamentally changed. State funds now comprise under half of total revenues for the 4-year institutions - a trend that will continue in our current economic climate. For example, this year:

- 31 states made mid-year cuts to the higher education budget during the 2001-02 fiscal year;
- 33 states reduced or held flat appropriations for higher education overall for 2002-03;
- 21 states held flat or reduced need-based student aid programs; and
- 33 states raised tuition for the coming year at public institutions to compensate for the shortfalls.

In addition, many institutions will cut services, courses, and personnel to accommodate for the loss in state assistance.

My experience at Ohio State University illustrates the interaction between state appropriations and tuition. The facts are these: We developed a multi-year plan to move OSU's tuition from 9th (out of 13) in Ohio to the top quartile. OSU was the only public flagship with essentially the lowest tuition in its state. Usually, the flagship campuses have the highest. In the midst of all this, higher education in Ohio had a 6 percent cut in state funds. OSU redid its plan and phased in (new students only) a tuition increase of 35% spread over two years. This was projected to move OSU from 9th to 4th in tuition. A

key element of the plan was to hold students with need-based aid harmless. That is, the need based aid funds were increased at the same rate as tuition. But we did even more; we added additional need based aid to hold harmless those students who became eligible for need based aid because of the higher tuition. This plan was well accepted by the by the governor and the legislature.

Last year in Maryland, a mid-year cut in the USM's state budget resulted in the abandonment of a self-imposed tuition increase cap of 4 percent and the approval of a 6 percent increase. The tuition increase and a hiring freeze for administrative personnel allowed the USM institutions to protect academic programs.

In this fiscal year, Maryland is facing a $400 million dollar shortfall, and a $1.3 billion dollar deficit is projected for the next fiscal year. Further cuts in the USM budget are a certainty. We will consider a number of steps to manage these cuts, including increases in tuition.

Another example of this problem can be found at the University of Virginia. Since 1990, Commonwealth support for the university dropped from 28 percent to 12 percent of revenues. The FY 2002 budget for the university was cut by $25 million (16 percent) during the fiscal year. As a remedy, the university increased tuition by 9 percent and cut base budgets of academic departments by almost 5 percent.

2. Labor Costs

Nationally, administrative expenditures have increased 1-3 percent annually over the last decade. Colleges and universities spend approximately $40 billion annually on administrative expenses that include academic support, student services, institutional support, and operations and maintenance.

Maintaining a faculty is also expensive. Retaining a high-quality force of teachers and researchers requires institutions to provide them with the compensation, benefits, and resources that make it possible to remain in the academy and make a living. Colleges and universities compete in a national and increasingly international market for the best and brightest professors. To attract these individuals, especially to areas like computer science, business, engineering, law, and medicine, compensation must be equal, or close, to what the private market will bear.

In Maryland, another factor that will contribute to higher labor costs is a recently enacted law granting collective bargaining rights to certain USM employees - a law I should ad that was supported by the USM Board of Regents. Wholly apart from its impact on wages and other compensation, the cost to our institutions just to engage in collective bargaining (e.g., legal counsel, lost work hours during bargaining sessions) and to administer a negotiated contract are significant.

Options to reduce labor costs are not popular. Larger classes, fewer seminars, and an increase in the faculty to student ratio are some of the byproducts of reducing the costs in the teaching ranks. To some extent, this is done through the use of part-time faculty. Since 1979 there has been a twenty percent increase in the percentage of part-time faculty teaching on college campuses. This has helped control costs, but it also has raised questions about the quality of teaching.

3. Growth of Scientific Knowledge

Knowledge in most scientific disciplines doubles every 7 to 10 years. In some cases, whole new scientific disciplines have been created: computer science and microbiology did not exist on most campuses twenty years ago. Biotechnology was not

around ten years ago. Today, it is unlikely to find a good college without areas of study and perhaps departments dedicated to bioinformatics, cognitive science, or cybernetics. Colleges and universities must keep up with the growth of this knowledge or their students receive an education that is obsolete.

To see how knowledge has grown and the implications it has for budgets of educational institutions, consider Chemical Abstracts, a single academic journal that is indispensable to scientists. In 1977 a subscription to the journal cost $3,500. Today, it costs $23,700.

In addition, the equipment used in colleges and universities has grown in number and price. The monocular microscope that many Baby Boomers remember from their own academic experience has been replaced by electron microscopes that are far better and significantly more expensive.

4. Technology

As with scientific knowledge, no institution of higher education can survive with obsolete technology. Students expect and need high-speed, high quality IT facilities from anywhere on campus. In the last decade, almost all colleges wired campus buildings for high-speed Internet access. But just as that has been completed, more and more schools face the costs of moving to a totally wireless environment.

In some important areas, the cost of technology has dropped -- for example, personal computers. However, the frequency with which this equipment is replaced means that colleges face regular, on-going expenses that did not exist a generation ago.

Because colleges are such large, diverse enterprises, the range of regulations that affect them is enormous. Indeed, it's hard to imagine any business in American society that is affected by as many different regulatory agencies as a typical college. The Federal Trade Commission (FTC) and the Consumer Product Safety Commission are the only federal agencies that do not have regulations affecting institutions of higher education.

I'm not asking that regulations be rolled back to save money or that universities be exempted from them. The point is simply that regulations increase the cost of doing business and these costs, as in every other business, are passed on to consumers.

These are the major factors driving the tuition decision of a public institution. I'd like to note what is not a factor in this decision: Federal and state student aid programs.

The 1998 National Commission on the Cost of Higher Education found no evidence to suggest a relationship between the availability of Federal grants and the costs or prices of institutions. It also found no conclusive evidence that the accessibility of loans has contributed to the increase. But, the Commission did suggest further study into this area.

In December 2001, the National Center for Education Statistics (NCES) published a statistical analysis report on college costs and prices in response to a 1998 mandate from Congress to study the issue. The NCES report came to similar conclusions: "Regarding the relation between financial aid and tuition, the regression models [used in the report] found no associations between most of the aid packaging variables (federal grants, state grants and loans) and changes in tuition in either the public or private not-for-profit sectors."

Understanding who makes tuition decisions is also important in the examination of tuition increases. In Maryland, a 17-member Board of Regents appointed by the Governor sets the tuition for the USM's 11 degree-granting institutions. Presidents of the institutions make recommendations, but it is the Board that makes the decision. In addition, as a practical matter, the Governor and the General Assembly also approve tuition because tuition is treated as a state appropriation, requiring legislative approval.

The relationship among a public institution's administration, its governing board, and its state's executive and legislative branches varies considerably. However, it is the rare institution that has complete autonomy in making the tuition decision. Legislative involvement in setting tuition, directly or indirectly, tends to reduce the rate of growth of tuition. There's nothing wrong with that, but political decisions regarding tuition often are made without regard to the actual costs of higher education.

In conclusion, Mr. Chairman, my experience suggests that there is no disagreement about goals when it comes to public higher education. We want it to be high quality and affordable. Every tuition decision I've been involved in has boiled down to a balancing of these goals. We can achieve these goals, and collectively - our institutions, their governing boards, and the state and federal governments - must work to provide the means for students to enroll and succeed.

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APPENDIX D -- WRITTEN STATEMENT OF DR. RICHARD M. FREELAND, PRESIDENT, NORTHEASTERN UNIVERSITY, BOSTON, MASSACHUSETTS

Testimony of
Richard M. Freeland, President of Northeastern University
before the
Committee on Education and the Workforce
October 2, 2002

Chairman Boehner, Congressman Miller, and members of the committee, I am pleased to have the opportunity to testify about the cost of higher education, a subject of great concern to all of us. In my opening remarks, I will focus on the private institution I lead, Northeastern University, which is a national, research university located in the heart of Boston. We enroll approximately 16,600 students from all fifty states and 125 nations. We offer a full array of majors in the traditional arts and sciences and we place particular emphasis on preparing undergraduate and graduate students for professional careers in such fields as business, engineering, law, computer science, and the health sciences. We also stress programs and curricula that help students integrate professional majors with the liberal arts and relate classroom study to professional work experience. We are widely known for our program of cooperative education, through which students alternate periods of full-time study and full-time paid employment in jobs related to their majors.

Northeastern was founded over a century ago as a place of opportunity for people in Boston who did not have the financial means to attend the other private colleges and universities in the area. Our flagship co-op program has historically helped many students earn the dollars they needed to pay their tuition bills. Northeastern's traditions of accessibility and affordability are particularly important to me. I have spent my entire academic career at access oriented institutions—two public universities, the University of

Massachusetts in Boston and the City University of New York, and now Northeastern. I regard access to quality higher education for young people from all walks of life as a central value of American democracy. And so I commend the committee for bringing new attention to the cost of higher education, and for your efforts in the 1990s related to the National Commission on the Cost of Higher Education. The report of that commission provided an important wake-up call for higher education about the vital importance of attending to the issue of college costs. Northeastern has responded to this charge, as I believe my testimony will show.

As I have mentioned, I will focus my remarks on my own university, but I believe our story is not unusual among private universities. Many of the headline stories about college costs focus on a relatively small number of elite and richly endowed private colleges and universities. Though such stories make interesting reading, the fact is that these institutions enroll a relative handful of all students attending college in this country. Most private institutions rely, as does Northeastern, on student payments for most of their revenues. In that respect we are quite typical of private higher education in the country.

Rising costs and strategies to restrain costs

Whenever we discuss the cost of higher education, it is of course helpful and necessary that we make a distinction between what it costs a university to educate its students and the price that those students pay to acquire that education. I will use my remaining time

to review both cost and price trends at Northeastern from a 1996-1997 base through 2001-2002.

Over the past five years, our total expenses have risen from $285 million to $416 million, or 46 percent; on a per student basis, operating expenses have increased from $18,264 to $22,243, or 21.8%. The primary expenses driving our costs upward involve new investment in four areas: salaries, technology, financial aid, and construction. The first three of these driving forces have dominated rising costs at most private universities in recent years.

* About two-thirds of our net operating budget is dedicated to salaries and benefits. Over the past five years, salaries have risen from $127.3 million to $168.7 million, an increase of 32.5 percent, and non-wage compensation has increased from $24.7 million to $29.5 million, an increase of 19.4 percent. Boston's high cost-of-living—combined with the fact that we must compete with industry if we want to bring more of the nation's best PhD-level scholars to Northeastern—make managing personnel costs one of our greatest challenges. This is especially true in the fields of science, engineering, and information technology, where private sector salaries are now more than one-third higher than the average salary for these fields in four-year colleges and universities. Moreover, the size of the gap has increased in recent years. To remain even somewhat competitive we have needed to dramatically increase starting salaries in the last five years: by 30 percent in electrical engineering; 51

percent in computer science; and 49 percent in finance, to provide just a few examples.

* Reflecting the dramatic growth of technology throughout the economy and society, our investment in technology has more than doubled in the past five years, from about $10 million to over $23 million. Were we able to do so, I would have increased these investments even more. Most of these investments support technology directly related to the education of students or the improvement of the non-academic services we provide them. It is, of course, vital that we expose our students to state-of-the-art technologies so that they graduate from Northeastern fully equipped to contribute to the nation's economy. I should add one additional point about our investments in technology: Such investments for educational purposes do not lead to productivity increases in higher education as similar investments frequently do in business enterprises. The productivity gains from these investments come later in the form of graduates better equipped to add value to their places of employment.

* A third significant factor driving our costs upward involves the development of our campus. Over five years, construction expenditures have added over $360 million in new buildings to campus, this has increased our annual debt service and depreciation from $26.2 million to $48.3 million, or 84 percent while also adding expenses to maintain and operate the new buildings. Between 1999 and 2004, we will have added nine new residence halls and new facilities for our colleges of health science and computer science. In this category, we may differ from other universities that are not

being as aggressive as Northeastern in expanding their physical facilities. In our case we have no choice. If we are to succeed in our efforts to enroll more students from outside the state and region, we must provide residential facilities. In addition, we have been urged by the Mayor of Boston to house more students in on-campus residence halls in order to reduce competition for housing between students and area residents.

* Finally, and critically important to the subject of this hearing, over the past five years our investment in institutional financial aid has grown by 123 percent, providing additional tuition discounts to students of modest means. To a significant degree this increase has been driven by our commitment to providing increases in financial aid to all aid-receiving students to offset annual tuition increases.

So our costs are rising as a result of a combination of external conditions, such as the cost-of-living in our area, and internal forces, such as our need to invest in personnel and technology.

I have stressed that our cost structures are fairly typical of those at private universities nationally. I should acknowledge, however, a few factors that are particular to Northeastern. First, we spend between $600 and $700 per student, or about $8 million a year, operating our cooperative education program. Most universities do not have these costs. Second, we are weighted toward high-cost fields such as engineering, computer science, and the health sciences. Third, much as we celebrate our location in Boston, it is

one of the most expensive places to live in the United States, and this fact puts great pressure on salaries as we seek to attract talented professionals from around the country. All of these factors increase the pressures of rising costs at Northeastern.

Against this background of upward pressures on costs, we have worked strenuously to keep our costs in check.

* In the early 1990s, we began implementing a restructuring plan that by the end of the 1996-1997 academic year would reduce full-time undergraduate enrollments by over 25 percent from over 15,000 to about 11,200; reduce staff by 18 percent, from over 2,800 full-time faculty, administrators and support staff to under 2,300; and eliminate thirteen majors that were weak or outdated. In 1997, we undertook a review of our graduate programs that led to the elimination of seventeen PhD, masters, and certificates of advanced graduate study programs.

* Like many other colleges and universities, we are relying more on non-tenure-track faculty and adjunct faculty to teach our students, a development that troubles me even as it holds down costs.

* We have sought additional cost savings through strategies that range from gaining new efficiencies through e-commerce to participating in local, state and national higher education purchasing consortiums. By participating in the Massachusetts non-profit energy purchasers consortium, for example, we have saved $2.8 million in

electricity costs over the last four years. All told, through participating in purchasing consortiums, and through other measures, we have saved about $20.5 million in energy costs over the past five years.

* We have asked each of our colleges, schools and departments to find ways to restrain costs: Over the past ten years, there have been no general budgetary increases to address rising operating costs due to inflation.

* We have also sought to insulate our students from rising costs by increasing revenues from sources other than tuition. Between July 1, 1997 and June 30, 2002, we have garnered nearly $122 million through fundraising, and external funding for research and projects has doubled to more than $47 million.

The price of a Northeastern education

Let me now address how all of this impacts what our students must pay to attend Northeastern.

From 1996-1997 through 2001-2002, the nominal tuition price—the so-called sticker price—paid by the average student at Northeastern increased from $13,846 to $18,032, a rise of 30.2 percent, or 5.4 percent a year. This compares with a national average for private universities of 31.8 percent over the same period. The numbers for Northeastern would describe changes in our effective tuition only if everyone paid the actual sticker

charged to students is, of course, the subsidy received by Northeastern students from a variety of sources including endowment income, fundraising, and tuition discounting, and this number has somewhat increased over the five year period. Thus Northeastern University has found a way to increase the quality of our academic programs, enhance the extra-curricular experience, and graduate a growing percentage of those who enroll as freshman while keeping the overall rise in net price somewhat below the growth of costs. We are especially proud of the fact that we have increased institutional financial aid by 123% while increasing our nominal tuition by only 30 per cent and net tuition by 19.8%.

Let me close with two thoughts. First, despite our efforts to restrain cost increases, we worry, as do the members of this committee, about the financial burdens that attending Northeastern impose on students and their families. So we will continue our efforts to control costs and continue our commitment to financial aid. Increasing endowment support for scholarships is, in fact, a major goal of our current capital campaign. Second, we believe that the education we offer our students, though challenging for the family budget of some, is a solid value for all. Northeastern freshmen entering this fall will pay a little more than $70.5 thousand in average tuition during the course of their undergraduate studies with us. But they will graduate into an economy that in the late 1990s was paying workers who hold bachelors degrees an average of $21,800 more than was earned by workers who have only graduated from high school. Over the course of their lifetimes, bachelors degree holders can expect to earn an average of $900,000 more than their high school graduate counterparts. Against such numbers our tuition charges, while substantial, represent a very good investment.

Committee on Education and the Workforce

Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

Your Name: Dr. Richard M. Freeland		
1. Will you be representing a federal, State, or local government entity? (If the answer is yes please contact the committee).	Yes	No X
2. Please list any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1999: None		
3. Will you be representing an entity other than a government entity?	Yes X	No
4. Other than yourself, please list what entity or entities you will be representing: Northeastern University		
5. Please list any offices or elected positions held and/or briefly describe your representational capacity with each of the entities you listed in response to question 4: President of Northeastern University		
6. Please list any federal grants or contracts (including subgrants or subcontracts) received by the entities you listed in response to question 4 since October 1, 1999, including the source and amount of each grant or contract: Please see attached Awards Received List-October 1, 1999-August 31, 2002		
7. Are there parent organizations, subsidiaries, or partnerships to the entities you disclosed in response to question number 4 that you will not be representing? If so, please list:	Yes	No X

Signature: R M Freeland Date: 9/30/02

Please attach this sheet to your written testimony.

AWARDS RECEIVED
October 1, 1999 - August 31, 2002

PI/PD	Project Title	Agency	Prime Agency	Awards
an, A.	Authentication and Key Revocation Protocols for Wireless Networks	AIRFOR		$221,56
an, A.	Authentication and Key Revocation Protocols for Wireless Networks	AIRFOR		$264,76
an, A.	Authentication and Key Revocation Protocols for Wireless Networks	AIRFOR		$263,91
ar, M.	Fusion as an Operation on Formal Systems	AIRFOR		$206,92
thar, S	Metamaterials for Antenna Technologies	AIRFOR		$30,00
thar, S	Metamaterials for Antenna Technologies	AIRFOR		$23,00
thar, S	Metamaterials for Antenna Technologies	AIRFOR		$100,00
ison, R.	A Structure Based, Solid Phase Synthesis Approach to the Development of Novel Selective Estrogen	ARMY		$185,08
er, E.	A Unified Approach to the Processing and Fusion of Time and Frequency Domain EMI Data for UXO	ARMY		$75,13
ipaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$770,00
ipaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$149,99
ipaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$920,00
ipaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$39,00
ipaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$110,99
ghaichi, M.	Autoignition and Burning Speeds of JP-8 Fuel at High Temperature and Pressures	ARMY		$80,00
ghaichi, M.	Autoignition and Burning Speeds of JP-8 Fuel at High Temperatures and Pressures	ARMY		$75,00
erjee, S.	Design Materials for Enhanced Oxygen Reduction Electrocatalysis in PEM Based Fuel Cells: Novel	ARMY		$160,40
erjee, S.	Design Materials for Enhanced Oxygen Reduction Electrocatalysis in PEM Based Fuel Cells: Novel	ARMY		$100,00
iria, C.	Development of Artificial Y-Type Hexaferritos	ARMY		$72,364
ar, E.	Enhanced Technology for Vehicular Demining Sensors and Systems	ARMY		$50,045
awabkeh, A	Evaluation of Electrokinetic Injection for In Situ Remediation	ARMY		$75,00
Y.	Molecular Analysis of the Common Signaling Mechanism of Neuronal Death Induced by Glutamate and	ARMY		$499,071
Y.	Molecular Analysis of the Common Signaling Mechanism of Neuronal Death Induced by Glutamate and	ARMY		$99,855
alski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$32,850
alski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$63,858
alski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$22,260
alski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$12,325
nor, G.	Nonlinear Adaptive Control of AC Electric Drives	ARMY		$90,000
nor, G.	Nonlinear Adaptive Control of AC Electric Drives	ARMY		$89,996
nor, G.	Nonlinear Adaptive Control of AC Electric Drives	ARMY		$30,000
tsawa, U	Quantitative Characterization of Pulmonary Pressure-Volume Curve for Improved Care of Acute Lung	ARMY		$113,137
os, P	Solid Phase Peptide Synthesis of Antimicrobial Peptides for Cell Binding Studies	ARMY		$25,000
ghaichi, M	To Purchase A Gas Chromatograph and a Flame Tracking Software System to Enhance Capability of	ARMY		$82,125
ht, D	MassAgenda: New Voices in Urban Policy	DOC		$399,225
ihev, A.	Acoustic Diffraction Tomographic Studies at Pit 9	DOE		$194,118
er, B.	Advances in DNA Sequencing by Capillary Array electrophoresis: Extended Sequence Read Length,	DOE		$140,000
er, B	Advances in DNA Sequencing by Capillary Array electrophoresis: Extended Sequence Read Length,	DOE		$140,000
ia, A.	Computer Modeling of Solidification Microstructure	DOE		$91,179
ia, A.	Computer Modeling of Solidification Microstructure	DOE		$52,500
il, A	Electronic Structure and Spectroscopy of Complex Materials	DOE		$125,000
il, A.	Electronic Structure & Spectroscopy of Complex Materials	DOE		$90,000
il, A	Electronic Structure & Spectroscopy of Complex Materials	DOE		$84,000
erjee, S	Enhanced Electrocatalysis for Proton Exchange Membrane Fuel Cells	DOE		$50,000
, T	Enhancement of Aluminum Forgings Through Rapid Preheating of Billets	DOE		$80,588
loff, J.	Microscopic Mechanisms for Friction	DOE		$30,000
loff, J.	Microscopic Mechanisms for Friction	DOE		$45,000
loff, J.	Microscopic Mechanisms for Friction	DOE		$45,000
r, T	The Use of Novel Tailored Nano-structured Support Media for Metal Catalyst Particles	DOE		$135,000
, V.	An Intervention to Improve Documentation of Domestic Violence in Medical Records	DOJ		$220,817
avitt, J	Best Practices for Data Collection Web-Based Racial Profiling Resource Center	DOJ		$49,420
avitt, J	Bridging the Information Disconnect in Bias Crime Reporting	DOJ		$149,933
ar, L.	Civil Legal Assistance	DOJ		$61,900
, D.	COPS Grant	DOJ		$450,000
ll, A.	Doctoral Dissertation	DOJ		$14,928

Ision of Sponsored Project Administration

PI/PD	Project Title	Agency	Agency	Award
x, J	Enhancement and Analysis of Homicide Data	DOJ		$64,8
:Davitt, J.	Racial Profiling Data Collection	DOJ		$43,0
estone, B.	Third Tier Cities Project	DOL		$359,8
rington, P	Three-Year Cooperative Demonstration Program, The New England Workforce Development	DOL		$75,0
m, A	Three-Year Cooperative Demonstration Program, The New England Workforce Development	DOL		$69,7
vens, T.	Creating Postwar Culture: The Nonverbal Arts of Japan, 1952-1965	ED		$100,0
nsil, A	ELMO Curricular Reform Project	ED		$183,5
nsil, A	ELMO Curricular Reform Project	ED		$238,1
pta, S.	Graduate Program in Information Systems and Manufacturing (GPRISM)	ED		$153,0
pta, S.	Graduate Program in Information Systems and Manufacturing (GPRISM)	ED		$173,14
pen, C.	Interpreter Education Project	ED		$4,07
pen, C.	Interpreter Education Project	ED		$155,40
pen, C.	Interpreter Education Project	ED		$155,40
pen, C.	Interpreter Education Project	ED		$155,56
pen, C.	Interpreter Education Project	ED		$154,26
er, K.	Project Collaborative Teams: Interdisciplinary Teams Preparing Early Intervention Personnel from	ED		$272,14
er, K.	Project Collaborative Teams: Interdisciplinary Teams Preparing Early Intervention Personnel from	ED		$281,88
rkiewicz, R.	Proposal to Expand Graduate Science Programs with Concentration in Advanced Scientific Computation	ED		$229,50
rkiewicz, R.	Proposal to Expand Graduate Science Programs with Concentration in Advanced Scientific Computation	ED		$259,71
nsil, A	Proposal to Expand Graduate Science Programs with Concentration in Advanced Scientific Computation	ED		$260,25
llosser, R	The Role of Speech Output Technology for Beginning Communicators	ED		$184,02
ght, D.	Urban Community Service	ED		$347,34
estone, B	Surveying the Technological Capabilities of Minority Businesses in Boston	FEDSUB		$10,50
e, V	Detection & Classification for Multichannel Spatial Signals	FEDSUB	AFOSR	$33,40
e, V	Detection & Classification for Multichannel Spatial Signals	FEDSUB	AFOSR	$16,44
ther, S.	High Power Microwave Response of Superconducting Films	FEDSUB	AFOSR	$59,99
er, E.	Integrated Reduced Signature Target Recognition: Phenomenology and Algorithm Development	FEDSUB	AFOSR	$179,95
er, E.	Integrated Reduced Signature Target Recognition: Phenomenology and Algorithm Development	FEDSUB	AFOSR	$23,02
<, B.	Novel Mathematical/Computational Approaches to Image Exploitation - Phase II	FEDSUB	AFOSR	$80,96
hemi, H.	Self Consuming Satellite with STTR Multifunctional Structure	FEDSUB	AFOSR	$29,99
sruer, N	System Design for Microfast Optical Switch	FEDSUB	AFOSR	$9,56
erlee, S	Advanced Direct Methanol Fuel Cells with Electron Beam - Processed Polyphosphazene Membranes	FEDSUB	ARO	$70,00
eso, J	MVP Training/Germany	FEDSUB	ARO	$48,00
eso, J.	Boston Collaboration for Youth Activity	FEDSUB	CDC	$113,83
eso, J.	Boston Collaboration for Youth Activity	FEDSUB	CDC	$66,751
on, C.	Dorchester Community Roundtable: Coord. Comm. Response	FEDSUB	CDC	$92,74
on, C.	Dorchester Community Roundtable: Coord. Comm. Response	FEDSUB	CDC	$172,884
mv, A	Play Across Boston	FEDSUB	CDC	$122,63
ner, W	Massachusetts Promise Americorps Promise Fellowship Program	FEDSUB	Corp Nat	$221,00
ner, W	Massachusetts Promise Americorps Promise Fellowship Program	FEDSUB	Corp Nat	$263,40
sh, R.	An Actin-Myosin Machine	FEDSUB	DARPA	$21,282
ar, M	ANT-Based Adaptive Resource Management	FEDSUB	DARPA	$237,070
ar, M	ANT-Based Adaptive Resource Management	FEDSUB	DARPA	$252,185
erherr, K.	BBN Request for Proposal (PCES), "Aspect QUO"	FEDSUB	DARPA	$35,000
erherr, K.	BBN Request for Proposal (PCES), "Aspect QUO"	FEDSUB	DARPA	$84,531
n, A.	Novel Stream Ciphers	FEDSUB	DARPA	$39,145
n, A.	Novel Stream Ciphers	FEDSUB	DARPA	$40,223
ser, M.	Acceleration of Scene Classification and Spectral Unmixing with Reconfigurable Computing	FEDSUB	DOE	$127,148
ser, M	Acceleration of Scene Classification and Spectral Unmixing with Reconfigurable Computing	FEDSUB	DOE	$8,000
ser, M	Acceleration of Scene Classification and Spectral Unmixing with Reconfigurable Computing	FEDSUB	DOE	$50,000
erlee, S	Development of Advanced Catalysts for Direct Methanol Fuel Cells	FEDSUB	DOE	$40,000
erlee, S	Improved PEM Fuel Cell MEA's based on PT Alloy Cathode Catalyst	FEDSUB	DOE	$31,000
erlee, S	Improved PEM Fuel Cell MEA's based on PT Alloy Cathode Catalyst	FEDSUB	DOE	$259,000
erlee, S	Integrated Manufacturing For Advanced Membrane Electrode Assemblies	FEDSUB	DOE	$466,000
erlee, S.	Interfacial Corrosion Science Studies: Novel Materials and In situ Synchrotron Based Spectroscopy	FEDSUB	DOE	$22,783
erlee, S	Low Cost, High Temperature Solid Polymex Electrolyte Membrane For Fuel Cells	FEDSUB	DOE	$8,000
erlee, S	Nano Phase-Segregated Co-polymers for High Temperature, Low PRessure Micro Composite Fuel Cell	FEDSUB	DOE	$72,000
nolon, P	Professional Service for Experimental Physics	FEDSUB	DOE	$19,775

vision of Sponsored Project Administration

PI/PD	Project Title	Agency	Agency	Awarde
nson, R.	Synthesis of Iodinated Estrogens and Their Tributylstannylated Precursors	FEDSUB	DOE	$15,58
nson, R.	Synthesis of Iodinated Estrogens and Their Tributylstannylated Precursors	FEDSUB	DOE	$15,58
rce, G	Boston Children and Families Database	FEDSUB	DOJ	$208,72
Devitt, J.	Cops Problem Solving Partnership Program	FEDSUB	DOJ	$14,18
ıter, L	GBLS Subcontract: Civil Legal Services	FEDSUB	DOJ	$76,04
ene, J	School Resource Officer Assessment	FEDSUB	DOJ	$80,78
Devitt, J	South Boston Coalition to Prevent Substance Abuse	FEDSUB	DOJ	$23,39
n, A.	Evaluation of the Youth Opportunity Grants	FEDSUB	DOL	$20,00
n, A	Evaluation of the Youth Opportunity Grants	FEDSUB	DOL	$555,00
n, A.	Youth Opportunity Area Demonstration	FEDSUB	DOL	$122,20
lh, P	Uses of Archived AVL/APC Data to Improve Transit Performance & Management	FEDSUB	DOT	$300,00
ırant, R	Development of a Virtual Reality Driving Simulator for Rehabilitation Assessment Research	FEDSUB	ED	$62,85
ırant, R	Development of a Virtual Reality Driving Simulator for Rehabilitation Assessment Research	FEDSUB	ED	$6,24
ırant, R	Development of a Virtual Reality Driving Simulator for Rehabilitation Assessment Research	FEDSUB	ED	$20,94
rell, P.	Massachusetts Partnership for Teacher Quality	FEDSUB	ED	$162,14
rell, P	Massachusetts Partnership for Teacher Quality	FEDSUB	ED	$183,72
rell, P	Massachusetts Partnership for Teacher Quality	FEDSUB	ED	$164,65
len, C.	New England Regional Membership Conference	FEDSUB	ED	$1,00
golo, E.	Teaches Collaborative Community Health Planning and Develops a Model for Transatlantic Exchange	FEDSUB	ED	$9,00
arzio, C.	2-4 MHz Multi-Element Ultrasound System	FEDSUB	HHS	$6,18
ıuel, S.	Acoustics and Perception of Consonant Modifications	FEDSUB	HHS	$33,08
ıuel, S.	Acoustics and Perception of Consonant Modifications	FEDSUB	HHS	$28,18
em, L	Advanced Training Opportunities for Minorities in Science	FEDSUB	HHS	$33,84
h, J.	Anatomic Morphologic Analysis of MR Brain Images	FEDSUB	HHS	$55,147
h, J.	Anatomic Morphologic Analysis of MR Brain Images	FEDSUB	HHS	$56,80
h, J.	Anatomic Morphologic Analysis of MR Brain Images	FEDSUB	HHS	$58,50
ler, L	Automatic Pronunciation Screening Test	FEDSUB	HHS	$50,72
uro, H	Behavioral Data for Prevention Programming	FEDSUB	HHS	$69,615
ıtiska, M.	Behavioral Evaluation of Novel DAT Antagonists as Potential Anti-Cocaine Medications	FEDSUB	HHS	$13,749
hilin, V.	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$221,561
hilin, V.	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$253,208
hilin, V.	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$14,625
hilin, V	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$235,054
ning, J.	Boston: Sickle Cell Center	FEDSUB	HHS	$9,558
ning, J	Boston Sickle Cell Center	FEDSUB	HHS	$106,081
ning, J	Boston Sickle Cell Center	FEDSUB	HHS	$108,884
ıks, D	Center for Bioelectric Field Modeling Simulation, and Visualization	FEDSUB	HHS	$100,718
ıks, D.	Center for Bioelectric Field Modeling, Simulation & Visualization	FEDSUB	HHS	$70,588
ıks, D.	Center for Bioelectric Field Modeling, Simulation & Visualization	FEDSUB	HHS	$69,090
ıks, D	Center for Bioelectric Field Modeling, Simulation & Visualization	FEDSUB	HHS	$70,960
e, R	Comprehensive Detection of DNA Adducts	FEDSUB	HHS	$45,000
e, R	Comprehensive Detection of DNA Adducts	FEDSUB	HHS	$25,635
e, R	Comprehensive Detection of DNA Adducts	FEDSUB	HHS	$12,468
, A.	Designing Viral Dynamic Studies	FEDSUB	HHS	$25,625
ev, A.	Education and Information Transfer Core	FEDSUB	HHS	$31,689
wood, J.	Etching of CsI Scintillators	FEDSUB	HHS	$80,554
v, B.	Imaging Intimal Hyperplasia Myocyte Hypoxia & Necrosis	FEDSUB	HHS	$45,376
v, B	Imaging Intimal Hyperplasia Myocyte Hypoxia & Necrosis	FEDSUB	HHS	$48,131
v, B	Imaging Intimal Hyperplasia Myocyte Hypoxia & Necrosis	FEDSUB	HHS	$79,244
er, B.	Implementation of a 384 Capillary Sequencing System	FEDSUB	HHS	$453,500
er, B.	Implementation of a 384 Capillary Sequencing System	FEDSUB	HHS	$419,440
ko, D	Internet-Based Nutrition Education for College Students	FEDSUB	HHS	$15,787
ko, D	Nutritional Health Information CD-ROM for College Women	FEDSUB	HHS	$10,966
endorp, F	Regulation of Light Sensitivity by Phosducin and 14-3-3 at the Rod Synapse	FEDSUB	HHS	$65,000
bino, G	Role of Thrombin in Sickle Vaso-occlusion	FEDSUB	HHS	$48,702
bino, G	Role of Thrombin in Sickle Vaso-Occlusion	FEDSUB	HHS	$50,144
ıa, A	SCOR in Sudden Cardiac Death	FEDSUB	HHS	$62,961
ıa, A	SCOR in Sudden Cardiac Death	FEDSUB	HHS	$62,820

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	Project Title	Agency	Agency	Award
rma, A	SCOR in Sudden Cardiac Death	FEDSUB	HHS	$66,75
ase, R.	Specificity of DNA Repair for Oxidized Abasic Sites	FEDSUB	HHS	$117,24
ase, R.	Specificity of DNA Repair for Oxidized Abasic Sites	FEDSUB	HHS	$120,76
ase, R.	Specificity of DNA Repair for Oxidized Abasic Sites	FEDSUB	HHS	$124,38
rber-Ewing, C	Stage-based Health Promotion with the Elderly	FEDSUB	HHS	$85,57
nning, J.	Structure, Interaction & Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$188,42
nning, J	Structure, Interaction & Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$195,09
nning, J	Structure, Interaction & Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$222,27
nning, J.	Structure Interactions and Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$190,99
nson, R	Subcontract from U Mass Medical	FEDSUB	HHS	$28,60
aro, H	Targeted Capacity Expansion HIV Intervention (Mother's Hope)	FEDSUB	HHS	$8,28
aro, H	Targeted Capacity Expansion Job Training Intervention	FEDSUB	HHS	$128,89
aro, H	Targeted Capacity Expansion Pregnant & Post Partum Intervention	FEDSUB	HHS	$128,89
iros, P	Trace Level Detection and Identification of DNA Damage	FEDSUB	HHS	$78,73
iros, P	Trace Level Detection and Identification of DNA Damage	FEDSUB	HHS	$84,20
iros, P	Trace Level Detection and Identification of DNA Damage	FEDSUB	HHS	$85,38
der, L.	Visual Automatic Feedback on Articulation	FEDSUB	HHS	$14,79
iros, P	Vitamin D Metabolism Through A-Ring Modification	FEDSUB	HHS	$29,68
iros, P	Vitamin D Metabolism Through A-Ring Modification	FEDSUB	HHS	$30,57
aro, H	Women & Violence Study (Consortium)	FEDSUB	HHS	$56,42
, C	Electrochemical Ethylene Sensor for Monitoring Low Levels in Plant Environments	FEDSUB	NASA	$4,57
ma, A.	Equiaxed Dendritic Solidification Experiment	FEDSUB	NASA	$20,00
ma, A.	Interface Pattern Selection in Directional Solidification	FEDSUB	NASA	$86,91
co, A	Massachusetts Space Grant Consortium	FEDSUB	NASA	$15,00
en, J.	American Humane Project	FEDSUB	NIJ	$8,32
en, J.	Co-Producing Commercial Safety Service in PA	FEDSUB	NIJ	$12,19
en, J.	Evaluating Community Policing in Public Housing	FEDSUB	NIJ	$8,96
en, J.	Supporting Police Integrity	FEDSUB	NIJ	$18,07
th, D.	Research and Outreach to Prevent and Control Aquatic Nuisance Species Invasions: Identification and	FEDSUB	NOAA	$50,37
th, D.	Research and Outreach to Prevent and Control Aquatic Nuisance Species Invasions: Identification and	FEDSUB	NOAA	$48,37
chenko, S	A B-O Conductor Insulator Transition on Two Dimentions	FEDSUB	NSF	$45,00
erlee, S	Bimetallic Oxygen Reduction Catalysis for Proton Exchange Membrane Fuel Cells	FEDSUB	NSF	$34,99
es, G.	Characterization of Ap4A Induced Release of Nitric Oxide From Endothelial Cells	FEDSUB	NSF	$17,224
es, G	Characterization of Ap4A Induced Release of Nitric Oxide From Endothelial Cells	FEDSUB	NSF	$17,224
es, G	Characterization of Ap4A Induced Release of Nitric Oxide From Endothelial Cells	FEDSUB	NSF	$17,224
croft, S.	CMS Construction Project	FEDSUB	NSF	$310,001
ilsen, M	Integrating Logic into the Computer Science Curriculum	FEDSUB	NSF	$119,864
o, T.	Structural Design and Thermal control of Metal matrix Composite Coatings from Layered Precursors	FEDSUB	NSF	$117,913
o,T	Ultrasonic Rapid Manufacturing of Meso/Microscale Functional and Active	FEDSUB	NSF	$150,350
w, R.	Unlocking the Secrets of Nubian Culture	FEDSUB	NSF	$28,842
A.	Development of Polymide-Based High Performance E-0 Polymers	FEDSUB	ONR	$58,000
lv, D.	Multiple Access & Networking Methods for Integrated Acoustic Communications and Navigation	FEDSUB	ONR	$49,494
lv, D.	Multiple Access & Networking Methods for Integrated Acoustic Communications and Navigation	FEDSUB	ONR	$11,638
kovic, A	Nonlinear Control of Electromechanical Systems in Naval Applications Via Immersion & Invariance	FEDSUB	ONR	$198,326
v, D.	Utility Modem and Network Development for Acoustic Telemetry	FEDSUB	ONR	$53,000
s, K	A Genomics Approach to P. aeruginosa Biofilms	HHS		$13,778
s, K	A Genomics Approach to P. aeruginosa Biofilms	HHS		$297,980
ard, E.	Acute Care Nurse Practioner Geriatrics Specialty	HHS		$40,162
ard, E	Acute Care Nurse Practioner Geriatrics Specialty	HHS		$151,395
ard, E	Acute Care Nurse Practioner Geriatrics Specialty	HHS		$166,301
nil, R.	Adolescent Anabolic Steroids, Vasopression & Aggression	HHS		$118,774
nil, R.	Adolescent Anabolic Steroids, Vasopression & Aggression	HHS		$9,353
nolm, M.	Advanced Education Nursing Education Program	HHS		$87,934
a, R.	Analysis of DBP DNA Adducts	HHS		$79,250
a, R.	Analysis of DBP DNA Adducts	HHS		$79,250
nska, M.	Behavioral Evaluation of Novel DAT Antagonists as Potential Anti-Cocaine Medications	HHS		$55,744
ers-Lee, S.	Catalysis and Regulation of the Urea Cycle	HHS		$227,902
ers-Lee, S.	Catalysis and Regulation of the Urea Cycle	HHS		$234,739

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PI/PD	Project Title	Agency	Agency	Awards
se, R.	Cation Labeling mass Spectrometry of DNA Adducts	HHS		$158,50
se, R.	Cation Labeling mass Spectrometry of DNA Adducts	HHS		$158,50
se, R.	Cation Labeling mass Spectrometry of DNA Adducts	HHS		$13,00
ining, J.	Chemical & Recombinant Studies on Sickle Hemoglobin	HHS		$241,37
ining, J.	Chemical & Recombinant Studies on Sickle Hemoglobin	HHS		$252,17
ining, J.	Chemical & Recombinant Studies on Sickle Hemoglobin	HHS		$258,07
elli-Pirozzi, T.	Correlation of Blue Dye & Modified Barium Swallow Tests	HHS		$21,70
ran, E	Descending Motor Control in Larval Zebra Fish	HHS		$40,19
is, F.	Development of Mammalain Circadian Rhythms	HHS		$236,55
is, F.	Development of Mammalain Circadian Rhythms	HHS		$213,97
is, F	Development of Mammalain Circadian Rhythms	HHS		$213,97
uss, P.	DNA Damage Recognition by AP Endonuclease	HHS		$317,00
uss, P	DNA Damage Recognition By AP Endonuclease	HHS		$149,66
uss, P.	DNA Damage Recognition by AP Endonuclease	HHS		$414,56
son, M	Educating Health Professionals Through Partnerships	HHS		$900,00
s, S	Enhancement of Nurse Anesthesia Program to Increase Workforce Diversity	HHS		$300,83
alley, D.	Functional Organization of the Zebrafish Hindbrain	HHS		$192,25
alley, D.	Functional Organization of the Zebrafish Hindbrain	HHS		$195,27
uchesne, M	Genetics for Nursing: Response to the Revolutions in Health CARP Today	HHS		$30,00
oll, E.	Giardia Encystment: Control of GalNAc Synthesis	HHS		$152,94
nard, R	Influence of Legal Context on Tobacco Industry Behavior	HHS		$575,548
s, T.	Infrared Studies of Protein Structure and Dynamics	HHS		$208,50
s, T.	Infrared Studies of Protein Structure and Dynamics	HHS		$158,500
h, W.	Insect Model for Study of the Insulin Receptor	HHS		$165,514
h, W.	Insect Model for Study of the Insulin Receptor	HHS		$170,478
anline, M.	Intensity DLs and masking in Normal and Impaired Hearing	HHS		$287,966
antine, M	Intensity DLs and Masking in Normal and Impaired Hearing	HHS		$360,588
hilin, V.	Long-Circulating Polymer-Modified Liposomes	HHS		$234,240
hilin, V.	Long-Circulating Polymer-Modified Liposomes	HHS		$237,750
os, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS		$209,505
os, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS		$215,791
os, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS		$29,500
os, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS		$222,265
h, R.	Mechanical Function of Muscle During Movement	HHS		$338,650
h, R.	Mechanical Function of Muscle During Movement	HHS		$10,000
h, R.	Mechanical Function of Muscle During Movement	HHS		$301,150
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS		$88,915
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS		$124,480
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS		$215,734
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS		$226,199
er, B.	Multiplex Mass Spectrometry: In-Depth Proteome Analysis	HHS		$269,739
er, B.	Multiplex Mass Spectrometry: In-Depth Proteome Analysis	HHS		$282,231
s, K	Natural Substrates and Inhibitors of Microbial MDR Pumps	HHS		$100,278
s, K	Natural Substrates and Inhibitors of Microbial MDR Pumps	HHS		$118,875
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS		$285,419
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS		$285,419
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS		$6,748
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS		$269,116
son, D.	Neurochemical Effects of Prenatal Cocaine in Rat Striata	HHS		$112,311
son, D.	Neurochemical Effects of Prenatal Cocaine in Rat Striata	HHS		$76,088
son, D	Neurochemical Effects of Prenatal Cocaine in Rat Striata	HHS		$59,807
er, B	New Separation and Analytical Technologies for Proteomics	HHS		$424,981
, S.	Normal and Impaired Temporal Processing of Complex Sounds	HHS		$237,332
, S.	Normal and Impaired Temporal Processing of Complex Sounds	HHS		$9,205
ntine, M.	Normal and Impaired Temporal Processing of Complex Sounds	HHS		$259,833
, S.	Normal and Impaired Temporal Processing of Complex Sounds	HHS		$292,847
ntine, M.	Normal and Impaired Temporal Processing of Complex Sounds	HHS		$30,394
ett, P.	NU Allied Health Project	HHS		$131,917

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PI/PD	Project Title	Agency	Agency	Awards
nkett, P.	NU Allied Health Project	HHS		$123,41
sholm, M.	Nurse Anesthetist Traineeship Program	HHS		$16,90
mer, C.	Ped Gene Action in Development and Reproduction	HHS		$285,30
mer, C.	Ped Gene Action in Development and Reproduction	HHS		$285,30
rimutter, N	Plausibility and Syntatic Processing Load	HHS		$466,65
Nanathan, N.	Postnatal Maternal Entrainment Of Circadian Rhythms	HHS		$102,45
Nanathan, N.	Postnatal Maternal Entrainment Of Circadian Rhythms	HHS		$105,46
ew, R.	Postreceptoral Color and Luminance Mechanisms	HHS		$223,12
ew, R.	Postreceptoral Color and Luminance Mechanisms	HHS		$237,75
tt, S.	Predoctoral Fellowship	HHS		$25,42
tt, S.	Predoctoral Fellowship	HHS		$25,79
kett, P	Proceedings - Academic Organizational Approaches to Transforming Health Science Education	HHS		$5,42
ner, C.	Protein Painting of Preimplantation Embryos	HHS		$249,63
ner, C.	Protein Painting of Preimplantation Embryos	HHS		$249,63
uss, P	Sabbatical Collaboration: Redox Function of Apendonuclease	HHS		$66,33
er, J.	Some Determinants of Speech Perception	HHS		$63,07
er, J.	Some Determinants of Speech Perception	HHS		$189,23
er, J.	Some Determinants of Speech Perception	HHS		$100,55
er, J.	Some Determinants of Speech Perception	HHS		$259,81
er, J.	Some Determinants of Speech Perception	HHS		$267,54
ncazio, L.	Sources of Information in Speech Perception	HHS		$31,77
ncazio, L.	Sources of Information in Speech Perception	HHS		$39,99
son, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$177,96
son, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$183,43
son, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$89,62
son, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$35,05
son, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$263,777
na, A.	Spiral Wave Stability in Presence of Cardiac Memory	HHS		$46,300
holm, M.	Support for Advanced Practice Nursing Students	HHS		$109,438
holm, M	Support for Advanced Practice Nursing Students	HHS		$86,036
s, S	Support for Nurse Anesthesia Students	HHS		$28,608
ins, S	Training Basic Researchers With Emphasis on Minorities	HHS		$141,609
ins, S	Training Basic Researchers, with Emphasis on Minorities	HHS		$167,697
th, S	NU Health	HUD		$997,800
co, A	CAMMP BOP 2002	NASA		$650,000
co, A	CAMMP BOP 2002	NASA		$375,000
co, A	CAMMP BOP 2002	NASA		$1,025,000
co, A	CAMMP BOP 2002	NASA		$120,000
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$1,344,337
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$895,668
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$303,650
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$1,322,500
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$125,000
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$1,000,912
er, M	Image Processing Techniques for Satellite Data Using Reconfigurable Technology	NASA		$46,000
co, A	Modeling of Macroscopic/Microscopic Transport and Growth Phenomena in Zoelite Crystals	NASA		$100,001
ia, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$35,000
ia, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$45,000
ia, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$40,500
ia, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$45,000
ia, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$45,000
ner, F	State Space Quantization in Navigation Tasks on an Eight-legged Robot	NASA		$78,870
ner, F	Team Oriented Robotic Exploration Tasks on Scorpion and K9 Platforms	NASA		$100,001
a, A.	The Role of Dynamic Nucleation at Moving Boundaries in Phase and Microstructure Selection	NASA		$105,000
kovic, A.	A Frequency-Selective Approach to Modeling and Control in Switched Power Processing	NAVY		$70,000
kovic, A.	A Frequency-Selective Approach to Modeling and Control in Switched Power Processing	NAVY		$68,259
ia, C.	Acquisition of Liquid Phase Epitaxy Equipment	NAVY		$64,000
ia, C.	Deposition of Thick Hexagonal Ferrite Films by the LAD/LPE Techniques	NAVY		$70,000

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oria, C	Deposition of Thick Hexagonal Ferrite Films by the LAD/LPE Techniques	NAVY		$70,00
oria, C	Deposition of Thick Hexagonal Ferrite Films by the LAD/LPE Techniques	NAVY		$75,50
oria, C	Developing of Broadband Circulators - A Feasibility Study	NAVY		$117,81
oria, C	Development of Artificial Ferrites at the Atomic Scale	NAVY		$79,05
oria, C	Development of Artificial Ferrites at the Atomic Scale	NAVY		$90,97
ıra, J.	Development of Biomimetic Ambulatory & Undulatory Underwater Robotic Systems	NAVY		$282,25
racky, P.	Development of Biomimetic Ambulatory & Undulatory Underwater Robotic Systems	NAVY		$67,74
ıra, J.	Development of Biomimetic Ambulatory & Undulatory Underwater Robotic Systems	NAVY		$50,00
ıhner, F.	Development of Terrestrial Biomimetic Autonomous Ambulatory Robots	NAVY		$449,40
Gruer, N.	Development of Terrestrial Biomimetic Autonomous Ambulatory Robots	NAVY		$44,70
ıhner, F.	Development of Terrestrial Biomimetic Autonomous Ambulatory Robots	NAVY		$546,48
ıra, J.	Funding for a Conference	NAVY		$25,00
ıra, J.	Funding For A Conference - Neurotechnology For Biomimetic Robots	NAVY		$15,47
ın, C.	Grad Student Support & Publication cost for CFDA98 Proceeding	NAVY		$24,00
ıhner, F	Integrating Dynamic Walking, Running & Locomotion In The Scorpion Robot	NAVY		$419,79
ıhar, S	Intrinsic Multiscale Structure & Dynamics	NAVY		$2,00
ıher, S.	Microwave Losses in Tunable Device Materials	NAVY		$74,99
ıhar, S.	Microwave Losses in Tunable Device Materials	NAVY		$75,99
ıhar, S.	Microwave Losses in Tunable Device Materials	NAVY		$77,00
er, S.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY		$140,00
er, S.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY		$400,00
oria, C.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY		$50,50
oria, C.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY		$296,21
oria, C.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY		$65,00
ıhar, S.	Proposal to Organize the ONR Superconducting Electronics Program Review and Conference	NAVY		$10,00
ıs, J	Sensor Fusion Mediation at Exteroceptive Reflexes	NAVY		$49,97
rs, J	Support for the Second International Symposium on Aquabiomechanisms	NAVY		$31,71
ıkis, J	Underwater Range Data Communication	NAVY		$17,68
ıkis, J	Underwater Range Data Communications	NAVY		$24,50
ıkis, J	Underwater Range Data Communications (URDC)	NAVY		$31,27
ning, P	Developing A New Teaching Field World History For The 21st Century	NEAH		$40,00
ning, P	Developing a New Teaching Field: World History for the 21st Century	NEAH		$155,50
ning, P.	World History Network	NEAH		$240,00
ıis, W.	A Memory Intensive Compilation Environment Targeting VLIW and DSP Architectures	NSF		$100,000
ahan, T.	A New Experimental Approach Toward a Unified Theory of Time-Dependent Consolidation	NSF		$42,146
naina, A	A Planing Meeting for Establishing an IUCRC for Microcontamination Control	NSF		$10,000
rouk, P	A Solvent Engineering Approach to the Study of Biomolecular Recognition in Heme Proteins and	NSF		$105,001
rouk, P	A Solvent Engineering Approach to the Study of Biomolecular Recognition in Heme Proteins and	NSF		$105,000
rouk, P	A Solvent Engineering Approach to the Study of Biomolecular Recognition in Heme Proteins and	NSF		$105,000
nan, D	Acquisition of a Low Temperature Near-Field Scanning Optical Microscope/Scanning Probe	NSF		$148,000
aloff, N	Acquisition of an Ultra-High-Vacuum Variable-Temperature Scanning Probe Microscope for the Study of	NSF		$107,000
ıusl, O.	Acquisition of Instrumentation for Dual Ion-Beam Deposition & Analysis of Carbon Nitride Thin films	NSF		$133,940
ıan, D	Acquisition of SQUID Magnetometer for Education, Teaching and Research	NSF		$143,000
ıan, D.	Acquisition of Superconducting Magnet	NSF		$90,946
, C.	Additivity Problems in Quantum Information Theory	NSF		$84,427
an, M	Air Entrapment for Liquifaction Mitigation - SGER	NSF		$50,000
itch, M	An Engineering Research Center for Subsurface Sensing and Imaging Systems (CENSSIS)	NSF		$2,591,751
itch, M	An Engineering Research Center for Subsurface Sensing and Imaging Systems (CENSSIS)	NSF		$3,100,000
itch, M	An Engineering Research Center for Subsurface Sensing & Imaging Systems	NSF		$50,000
d, M.	Analysis-Based Program Transformation	NSF		$99,930
d, M	Analysis-Based Program Transformation	NSF		$102,333
s, K	Apoptosis in Bacteria	NSF		$50,000
man, J.	Applications of Representations of Quivers	NSF		$31,500
man, J.	Applications of Representations of Quivers	NSF		$31,500
H	Automatic Recognition of Emotion in Speech	NSF		$99,759
raman, R.	CAREER: Algorithms for Organizing and Scheduling Distributed Resources	NSF		$115,929
raman, R.	CAREER: Algorithms for Organizing and Scheduling Distributed Resources	NSF		$59,152
C	CAREER: Coordinating Primary & Secondary Metabolic Activities for Enhancing Terpenoid Indole	NSF		$75,000

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PI/PD	Project Title	Agency	Agency	Awards
tein, S.	Cataloguing Diversity of Ciliated Protists Through the Synergy of Morphological and Genetic Approaches	NSF		$279,54
tein, S	Cataloguing Diversity of Ciliated Protists Through the Synergy of Morphological and Genetic Approaches	NSF		$12,00
oria, C	Ceramic Artificial Ferrite Prepared by Laser	NSF		$86,05
icroft, S.	CMS Construction Project	NSF		$3,959,99
icroft, S.	CMS Construction Project	NSF		$4,074,00
me, M	Cohomology Theories for Algebraic Varieties	NSF		$44,00
erhert, K	Collaboration - Oriented Aspects	NSF		$99,99
wood, J	Collaborative Research: Scaling of Microwave Plasma Sources to Small Dimensions	NSF		$54,67
wood, J	Collaborative Research: Scaling of Microwave Plasma Sources to Small Dimensions	NSF		$58,81
wood, J	Collaborative Research: Scaling of Microwave Plasma Sources to Small Dimensions	NSF		$58,31
tano, D	Collaborative Research: The Effect of Emotions on Automatic Intergroup Evaluation, Goals, and	NSF		$32,55
rchenko, S	Collabroative Research: Study of Novel Phases in Two Dimensional Electron Systems in High B/T	NSF		$149,784
ala, R.	Computer Science Laboratory Projects That Provide Breadth Through Depth	NSF		$49,67
ala, R.	Computer Science Laboratory Projects That Provide Breadth Through Depth	NSF		$32,27
isen, M	Computing Education for Every Student in Secondary Schools	NSF		$627,05
isen, M	Computing Education for Every Student in Secondary Schools	NSF		$623,883
ce, G.	Connections to the Internet	NSF		$145,425
lla-Fascetti, S.	Connections: Women in Sciences, Engineering and Math (SEM) Making Connections Between	NSF		$299,647
lla-Fascetti, S.	Connections: Women in Sciences, Engineering and Math (SEM) Making Connections Between	NSF		$299,291
croft, S.	Continuation of REU Site at CERN	NSF		$104,265
croft, S.	Continuation of REU Site at CERN	NSF		$64,000
croft, S.	Continuation of REU Site at CERN	NSF		$104,265
naina, A	Cooperative Research with Korea: Study of the adhesion between Slurry Particles and Water Surface	NSF		$24,300
shan, T	Developing a Reactive Geocomposite to Remediate Contaminated, Subaqueous Sediments	NSF		$100,000
ney, D.	Development of a New Genetic Transformation Technique for Maine Algae	NSF		$54,118
usi, O.	Development of an Ultrasound Based System for Dynamic Intracoronary Plaque Characterization	NSF		$62,530
usi, O.	Development of an Ultrasound Based System for Dynamic Intracoronary Plaque Characteitization	NSF		$62,134
r, S.	Development of Hexaferrite Films for Integrated Optical Waveguide Isolators	NSF		$239,874
sac, A.	Development of Physical Programming for Robust computational Design	NSF		$25,000
lle, R	Discovering and Using the Knowledge in Biology Text	NSF		$99,261
skv, D.	Distributed Systems With Slit, Based on Cots	NSF		$229,163
nor, G	Embedded Systems For Feedback Mixing Control in Fluid Flow	NSF		$80,000
naina, A	Establishing an IUCRC for Microcontamination Control Site at Northeastern	NSF		$50,000
croft, S.	Experimental Particle Physics	NSF		$793,040
croft, S.	Experimental Particle Physics	NSF		$793,040
croft, S.	Experimental Particle Physics	NSF		$159,736
croft, S	Experimental Particle Physics	NSF		$290,000
sin, S	Exploratory Research on Arctic Microbial Diversity	NSF		$34,133
an, D.	Ferromagnetism in Semiconductors	NSF		$10,000
an, D.	Ferromagnetism in Semiconductors	NSF		$10,000
rzo, C	Generalized Ocular Atlases for Ophthalmic Surgery	NSF		$180,000
nor, G	GOALI: Control and Observation of Mixing in Fluid Flow	NSF		$180,000
evan, J	GOALI: Statistical Quality Control Methods for Health Systems Problems	NSF		$71,143
evan, J	GOALI: Statistical Quality Control Methods for Health Systems Problems	NSF		$74,700
evan, J	GOALI: Statistical Quality Control Methods for Health Systems Problems	NSF		$78,435
sin, S	Hidden Microbial Diversity of the Sea: Testing a Novel Approach to Cultivating Presently Uncultivable	NSF		$65,732
ri, H	Hilbert Space Tools for Modeling & Compensation of Reactive Power in Energy Processing Systems	NSF		$270,000
usi, O	Hydrogen Production by Photovoltaic Powered Electrolyses	NSF		$32,800
sh, W	ICEFISH 2003: International Collaborative Expedition to Collect and Study Fish indigenous to	NSF		$156,109
tch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF		$1,201,170
tch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF		$191,000
tch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF		$987,780
tch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF		$191,000
tch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF		$1,038,253
erg, B.	Indexing and Reorganization in Parallel Database Systems	NSF		$79,913
erg, B.	Indexing and Reorganization in Parallel Database Systems	NSF		$84,669
wabkeh, A.	Innovative Soil Remediation Methodologies	NSF		$375,000
s J.	Integrating Economic and Environmental Assessment in Advanced Materials Processing	NSF		$25,000

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ıcs, J	Integrating Economic and Environmental Assessment in Advanced Materials Processing	NSF	$25,00
eis, W.	Interprocedural Value-Based Program Optimization	NSF	$10,00
ar, E	Inverse Scattling Models ad Algorithms for Functional Imaging with Diffuse Optical Wavefields	NSF	$98,69
k, B	ITR/EWF: New Approaches to Human Capital Development Through Information Technology Research	NSF	$767,21
‹, B	ITR/EWF: New Approaches to Human Capital Development Through Information Technology Research	NSF	$10,00
F,	Lattice Models and Applications	NSF	$225,00
F,	Lattice Models and Applications	NSF	$10,00
F,	Lattice Models and Applications	NSF	$10,00
F,	Lattice Models and Applications	NSF	$10,00
rchenko, S,	Metallic Behavior of Two-Dimensional Semiconductors	NSF	$48,00
rchenko, S,	Metallic Behavior of Two-Dimensional Semiconductors	NSF	$98,00
rchenko, S.	Metallic Behavior of Two-Dimensional Semiconductors	NSF	$93,00
ruer, N.	Micro Gas Analyzer	NSF	$472,48
ıor, W	Modelling Generational Garbage Collection	NSF	$250,00
ıad, S	Monolithic Integrated Circuits for Biomedical Sensor Applications	NSF	$159,92
nman, P	Multiple Pathways Toward Gender Equity in The IT Workforce	NSF	$674,70
ıloff, N	Nanoscale Spatio-Temporal Glassy Dynamics	NSF	$54,184
il, D.	Novel High-Field EPR Studies of Photosynthetic Reaction Centers	NSF	$85,000
kman, D.	NSF Graduate Teaching Fellows in K-12 Education	NSF	$338,200
kman, D	NSF Graduate Teaching Fellows in K-12 Education	NSF	$361,600
a, T.	Nuclear Resonance Spectroscopy of Biomolecules	NSF	$224,432
ndis, Y.	On the Emissions of PAH, PM and Other Pollutants From Burning Organic Wastes Targeting	NSF	$135,546
ndis, Y.	On the Emissions of PAH, PM and Other Pollutants From Burning Organic Wastes Targeting	NSF	$120,304
ndis, Y.	On the Emissions of PAH, PM and Other Pollutants From Burning Organic Wastes Targeting	NSF	$120,068
arzio, C	Partnership in Education and Research: Engineering the Future of Biomedical Subsurface Imaging	NSF	$244,701
ı, C.	Plasma Chemistry Study in Plasma Doping	NSF	$89,476
ı, C.	Plasma Chemistry Study in Plasma Doping	NSF	$80,660
ı, C.	Plasma Chemistry Study in Plasma Doping	NSF	$82,874
vinsky, A	Polyhedral Combination in Representation Theory & Algebraic Geometry	NSF	$53,730
vinsky, A.	Polyhedral Combinatorics in Representation Theory and Algebraic Geometry	NSF	$26,000
vinsky, A.	Polyhedral Combinatorics in Representation Theory and Algebraic Geometry	NSF	$26,000
C	POWRE: Directing Indole Alkaloid Synthesis from Catharanthus Roseus Cultures	NSF	$74,999
C	POWRE: Directing Indole Alkaloid Synthesis from Catharanthus Roseus Cultures	NSF	$6,000
echan, M	POWRE: Enzyme-Substrate Interactions Mediated by Vitamin B6	NSF	$75,000
la-Fascetti,S.	Predicting Bridge Life-Cycle Deterioration: Integrating Condition States with System Performance	NSF	$25,000
a-Fascetti,S.	Predicting Bridge Life-Cycle Deterioration: Integrating Condition States with System Performance	NSF	$9,000
r, T.	Preparation Characterization & Kinetic Behavior of Unique Carbon Supported Bimetallic Cu Catalysts for	NSF	$56,861
r, T.	Preparation Characterization & Kinetic Behavior of Unique Carbon Supported Bimetallic Cu Catalysts for	NSF	$110,000
th, D	Preparation Characterization & Kinetic Behavior of Unique Carbon Supported Bimetallic Cu Catalysts for	NSF	$9,139
loff, N.	Probing Fluctuations and Nanoscale Dynamics in Glasses and other complex Materials	NSF	$6,000
arthi, S	Product, Process, and System Monitoring and Diagnostics	NSF	$175,000
is, W	Profile-Driven Compile-Time Optimizations Targeting Commodity Desktop Environment	NSF	$9,734
ar, S.	Quantum Chaos and Electromagnetic Chaos	NSF	$5,000
ar, S	Quantum Chaos and Electromagnetic Chaos	NSF	$169,888
ar, S	Quantum Chaos and Electromagnetic Chaos	NSF	$130,000
tch, M	Research Experience for Teachers (supplement)	NSF	$150,000
roft, S.	Research Experiences for Undergraduates at CERN	NSF	$112,680
roft, S.	Research Experiences for Undergraduates at CERN	NSF	$59,100
a, J	Research for Multi Disciplinary Principles in Manufacturing	NSF	$24,401
P.	Research in Particle Theory	NSF	$104,873
r, T.	Research in Particle Theory	NSF	$105,000
ıerg, H	Research on Elementary Particle Theory	NSF	$40,000
ıerg, H	Research on Elementary Particle Theory	NSF	$40,000
ıerg, H	Research on Elementary Particle Theory	NSF	$40,000
ıption, P.	Resonance Raman Studies of Election Nuclear Coupling, Time Resolved Dynamics and Magnetic	NSF	$5,000
T.	Resonance Raman Studies of Election Nuclear Coupling, Time Resolved Dynamics and Magnetic	NSF	$125,000
ıption, P.	Resonance Raman Studies of Election Nuclear Coupling, Time Resolved Dynamics and Magnetic	NSF	$120,000
ıption, P	Resonance Raman Studies of Electron Nuclear Coupling, Time Resolved Dynamics & Magnetic	NSF	$200,000

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	Project Title	Agency	Agency	Award
Knight, S	REU Supplement for CenSSIS	NSF		$52,50
zners, E	RNA Having Imidazole Functionality: A Novel Biopolymer Mimic for Design of Artificial Catalysts	NSF		$42,60
operman, G	Scalable Parallel Symbolic Computation for Irregular Problems	NSF		$85,29
oris, C	Self-biased Y-junction Circulators	NSF		$72,19
nd, M.	Semantics of Implicit Procedure-Calling Mechanisms	NSF		$214,23
verman, M	Spectral Invariants of Deformed Dirac Operators on Open G-Manifolds	NSF		$96,12
f, J.	Status/Dominance and Motivational Effects on Nonverbal Sensitivity and Smiling	NSF		$5,00
nning, J.	Structure and Role of D-Amino Acid Transminase	NSF		$85,00
rich, W.	Structure, Function, and Expression of Tubulins, Globins, and Microtubule-Dependent Motors from	NSF		$166,27
rich, W.	Structure, Function, and Expression of Tubulins, Globins, and Microtubule-Dependent Motors from	NSF		$200,96
rich, W	Structure, Function, and Expression of Tubulins, Globins, and Microtubule-Dependent Motors from	NSF		$190,61
rimutter, N.	Syntactic Processes in Sentence Comprehension	NSF		$139,90
rimutter, N.	Syntactic Processes in Sentence Comprehension	NSF		$3,23
F.	The Development of Number Concepts	NSF		$124,92
th, D.	The Influence of Water Temperature on Predator-Induced Defensive Responses and Life-History	NSF		$80,59
th, D.	The Influence of Water Temperature on Predator-Induced Defensive Responses and Life-History	NSF		$35,26
F	The Role of Language in the Acquisition of Kind Concepts	NSF		$41,97
ers, W.	The Role of Race in Punishing Criminal Violence: Jury Sentencing in Capital Cases	NSF		$249,59
alle, R.	The Structure and Content of Diagrams	NSF		$142,56
alle, R.	The Structure and Content of Diagrams	NSF		$135,55
alle, R.	The Structure and Content of Diagrams	NSF		$21,75
rouk, P.	The Use of Non Aqueous Media to Probe Oxyferryl Metalloenzyme Intermediates	NSF		$4,37
rechen, M	THEMATICS: Development & Application of a New Computational Tool for Functional Genomics	NSF		$201,84
, J.	Theoretical Studies of Quantum Chaos	NSF		$87,00
, J.	Theoretical Studies of Quantum Chaos	NSF		$49,997
, J	Theoretical Studies of Quantum Chaos	NSF		$50,00
oin, M	Topics in Analysis on Non-Compact Manifolds	NSF		$40,000
oin, M	Topics in Analysis on Non-Compact Manifolds	NSF		$40,000
u, A	Topology of Hyperplane Arrangement	NSF		$33,586
u, A	Topology of Hyperplane Arrangement	NSF		$33,586
r, E	Toward a Unified Approach to Diffuse Wave Inverse Problems	NSF		$124,965
, P	Tractable Formal Methods for the Synthesis of concurrent Programs	NSF		$66,937
s, G	Prostate Activated Prodrugs and Imaging Agents	OTHERDO	Army	$547,632
ita, E.	Research in Discrete Geometry and Geometric Group Theory	OTHERDO	NSA	$22,632
bour, E.	20th Anniversary Meeting of IHSS	OTHERFED		$7,140
off, N	Assist State University of World Languages to Strengthen Democratic Foundations of Journalism	OTHERFED		$200,000
o, J	Athletes in Service to America	OTHERFED		$1,041,130
w, A	Athletes in Service to America	OTHERFED		$229,816
w, A	Athletes in Service to America	OTHERFED		$857,053
d, S.	Athletes in Service to America Program	OTHERFED		$84,756
an, B	COBASE Project Development & Initiation Grant	OTHERFED		$6,600
nan, E.	Community Health Service Corp.	OTHERFED		$35,250
done, B.	FMCS "Resource Kit"	OTHERFED		$119,988
done, B.	FMCS "Resource Kit"	OTHERFED		$100,453
done, B.	FMCS "Resource Kit"	OTHERFED		$80,000
, E.	Funding of Patrick Rennich	OTHERFED		$26,371
tch, M.	Innovative Technologies for Application to Satellite-Assisted Prediction of Earthquakes	OTHERFED		$249,980
e, R	NIST SURF Program	OTHERFED		$5,845
nan, E.	Service Learning Corps	OTHERFE		$212,552
aport, C	Electromagnetics Modeling for Detection of Buried Objects	OTHERFED	AFOSR	$7,960

AWARDS RECEIVED
October 1, 1999 - August 31, 2002

PI/PD	Project Title	Agency	Prime Agency	Awar
ıan, A.	Authentication and Key Revocation Protocols for Wireless Networks	AIRFOR		$221,!
ıan, A.	Authentication and Key Revocation Protocols for Wireless Networks	AIRFOR		$264,:
ıan, A.	Authentication and Key Revocation Protocols for Wireless Networks	AIRFOR		$263,!
ıkar, M.	Fusion as an Operation on Formal Systems	AIRFOR		$208,!
ıdhar, S	Metamaterials for Antenna Technologies	AIRFOR		$30,(
ıdhar, S	Metamaterials for Antenna Technologies	AIRFOR		$23,(
ıdhar, S	Metamaterials for Antenna Technologies	AIRFOR		$100,(
nson, R.	A Structure Based, Solid Phase Synthesis Approach to the Development of Novel Selective Estrogen	ARMY		$185,(
ler, E.	A Unified Approach to the Processing and Fusion of Time and Frequency Domain EMI Data for UXO	ARMY		$75,1
ppaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$770,(
ppaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$149,!
ppaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$920,(
ppaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$39,(
ppaport, C.	An Integrated Approach to the Detection, Localization, and Classification of Mines	ARMY		$110,8
ıghalchi, M.	Autoignition and Burning Speeds of JP-8 Fuel at High Temperatures and Pressures	ARMY		$80,0
ıghalchi, M.	Autoignition and Burning Speeds of JP-8 Fuel at High Temperatures and Pressures	ARMY		$75,0
ıkerise, S.	Design Materials for Enhanced Oxygen Reduction Electrocatalysis in PEM Based Fuel Cells: Novel	ARMY		$160,4
ıkerise, S.	Design Materials for Enhanced Oxygen Reduction Electrocatalysis in PEM Based Fuel Cells: Novel	ARMY		$100,0
ıorta, C.	Development of Artificial Y-Type Hexaferrites	ARMY		$72,3
ıer, E.	Enhanced Technology for Vehicular Damining Sensors and Systems	ARMY		$50,0
hawabkah, A	Evaluation of Electrokinetic Infection for In Situ Remediation	ARMY		$75,0
, Y.	Molecular Analysis of the Common Signaling Mechanism of Neuronal Death Induced by Glutamate and	ARMY		$499,0
, Y.	Molecular Analysis of the Common Signaling Mechanism of Neuronal Death Induced by Glutamate and	ARMY		$99,8
ıalski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$32,8
ıalski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$63,8!
ıalski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$22,2!
ıalski, G.	NLSRM Code Applications Involving Problems with Time Dependent Nonlinear Optical Parameters	ARMY		$12,3:
ımor, G.	Nonlinear Adaptive Control of AC Electric Drives	ARMY		$90,0!
ımor, G.	Nonlinear Adaptive Control of AC Electric Drives	ARMY		$89,9!
ımor, G.	Nonlinear Adaptive Control of AC Electric Drives	ARMY		$30,0!
usawa, U	Quantitative Characterization of Pulmonary Pressure-Volume Curve for Improved Care of Acute Lung	ARMY		$113,1:
ıros, P	Solid Phase Peptide Synthesis of Antimicrobial Peptides for Cell Binding Studies	ARMY		$25,0(
ıghalchi, M	To Purchase A Gas Chromatograph and a Flame Tracking Software System to Enhance Capability of	ARMY		$82,1:
ght, D	MassAgenda: New Voices in Urban Policy	DOC		$369,2:
ıaney, A.	Acoustic Diffraction Tomographic Studies at Pit 9	DOE		$194,1'
per, B.	Advances in DNA Sequencing by Capillary Array electrophoresis: Extended Sequence Read Length,	DOE		$140,0(
per, B.	Advances in DNA Sequencing by Capillary Array electrophoresis: Extended Sequence Read Length,	DOE		$140,0(
ma, A.	Computer Modeling of Solidification Microstructure	DOE		$91,17
ma, A.	Computer Modeling of Solidification Microstructure	DOE		$52,5(
ell, A	Electronic Structure and Spectroscopy of Complex Materials	DOE		$125,0(
ell, A.	Electronic Structure & Spectroscopy of Complex Materials	DOE		$90,0(
ell, A	Electronic Structure & Spectroscopy of Complex Materials	DOE		$54,0(
kerise, S	Enhanced Electrocatalysis for Proton Exchange Membrane Fuel Cells	DOE		$50,00
o, T	Enhancement of Aluminum Forgings Through Rapid Preheating of Billets	DOE		$80,58
ıloff, J.	Microscopic Mechanisms for Friction	DOE		$30,00
ıloff, J.	Microscopic Mechanisms for Friction	DOE		$45,00
ıloff, J.	Microscopic Mechanisms for Friction	DOE		$45,00
er, T	The Use of Novel Tailored Nano-structured Support Media for Metal Catalyst Particles	DOE		$135,00
s, V.	An Intervention to Improve Documentation of Domestic Violence in Medical Records	DOJ		$220,81
evitt, J	Best Practices for Data Collection Web-Based Racial Profiling Resource Center	DOJ		$49,42
evitt, J	Bridging the Information Disconnect in Bias Crime Reporting	DOJ		$149,93
ıer, L.	Civil Legal Assistance	DOJ		$61,90
in, D.	COPS Grant	DOJ		$450,00
ell, A.	Doctoral Dissertation	DOJ		$14,92

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x, J	Enhancement and Analysis of Homicide Data	DOJ		$84,[illegible]
Devitt, J.	Racial Profiling Data Collection	DOJ		$43,[illegible]
estone, B.	Third Tier Cities Project	DOL		$359,[illegible]
rington, P	Three-Year Cooperative Demonstration Program, The New England Workforce Development	DOL		$75,[illegible]
m, A	Three-Year Cooperative Demonstration Program, The New England Workforce Development	DOL		$69,[illegible]
vens, T.	Creating Postwar Culture: The Nonverbal Arts of Japan, 1952-1965	ED		$100,[illegible]
nsil, A	ELMO Curricular Reform Project	ED		$193,[illegible]
nsil, A	ELMO Curricular Reform Project	ED		$238,1
ota, S.	Graduate Program in Information Systems and Manufacturing (GPRISM)	ED		$153,[illegible]
ota, S.	Graduate Program in Information Systems and Manufacturing (GPRISM)	ED		$173,1
gen, C.	Interpreter Education Project	ED		$4,0
gen, C.	Interpreter Education Project	ED		$155,4
gen, C.	Interpreter Education Project	ED		$155,4
gen, C.	Interpreter Education Project	ED		$155,5
nen, C.	Interpreter Education Project	ED		$154,2
er, K.	Project Collaborative Teams: Interdisciplinary Teams Preparing Early Intervention Personnel from	ED		$272,1
er, K.	Project Collaborative Teams: Interdisciplinary Teams Preparing Early Intervention Personnel from	ED		$281,8
rkiewicz, R.	Proposal to Expand Graduate Science Programs with Concentration in Advanced Scientific Computation	ED		$229,5
rkiewicz, R.	Proposal to Expand Graduate Science Programs with Concentration in Advanced Scientific Computation	ED		$259,7
nsil, A	Proposal to Expand Graduate Science Programs with Concentration in Advanced Scientific Computation	ED		$260,2
klosser, R	The Role of Speech Output Technology for Beginning Communicators	ED		$184,0
ght, D.	Urban Community Service	ED		$347,3
estone, B	Surveying the Technological Capabilities of Minority Businesses in Boston	FEDSUB		$10,5
le, V	Detection & Classification for Multichannel Spatial Signals	FEDSUB	AFOSR	$33,4
le, V	Detection & Classification for Multichannel Spatial Signals	FEDSUB	AFOSR	$16,4
thar, S.	High Power Microwave Response of Superconductiong Films	FEDSUB	AFOSR	$59,9
er, E.	Integrated Reduced Signature Target Recognition: Phenomenology and Algorithm Development	FEDSUB	AFOSR	$179,9
er, E.	Integrated Reduced Signature Target Recognition: Phenomenology and Algorithm Development	FEDSUB	AFOSR	$23,0
k, B.	Novel Mathematical/Computational Approaches to Image Exploitation - Phase II	FEDSUB	AFOSR	$80,9
hemi, H.	Self Consuming Satellite with STTR Multifunctional Structure	FEDSUB	AFOSR	$29,9
ruer, N	System Design for Microfast Optical Switch	FEDSUB	AFOSR	$9,5
erjee, S	Advanced Direct Methanol Fuel Cells with Electron Beam - Processed Polyphosphazene Membranes	FEDSUB	ARO	$70,0
so, J	MVP Training/Germany	FEDSUB	ARO	$48,0
so, J.	Boston Collaboration for Youth Activity	FEDSUB	CDC	$113,8
so, J.	Boston Collaboration for Youth Activity	FEDSUB	CDC	$66,7
on, C.	Dorchester Community Roundtable: Coord. Comm. Response	FEDSUB	CDC	$92,7
on, C.	Dorchester Community Roundtable: Coord. Comm. Response	FEDSUB	CDC	$172,8
my, A	Play Across Boston	FEDSUB	CDC	$122,6
ner, W	Massachusetts Promise Americorps Promise Fellowship Program	FEDSUB	Corp Nat	$221,0
ner, W	Massachusetts Promise Americorps Promise Fellowship Program	FEDSUB	Corp Nat	$263,4
sh, R.	An Actin-Myosin Machine	FEDSUB	DARPA	$21,26
ar, M	ANT-Based Adaptive Resource Management	FEDSUB	DARPA	$237,07
ar, M	ANT-Based Adaptive Resource Management	FEDSUB	DARPA	$252,18
erherr, K.	BBN Request for Proposal (PCES), "Aspect QUO"	FEDSUB	DARPA	$35,00
erherr, K.	BBN Request for Proposal (PCES), "Aspect QUO"	FEDSUB	DARPA	$84,53
n, A.	Novel Stream Ciphers	FEDSUB	DARPA	$39,14
n, A.	Novel Stream Ciphers	FEDSUB	DARPA	$40,22
ner, M.	Acceleration of Scene Classification and Spectral Unmixing with Reconfigurable Computing	FEDSUB	DOE	$127,14
ner, M	Acceleration of Scene Classification and Spectral Unmixing with Reconfigurable Computing	FEDSUB	DOE	$8,00
ner, M	Acceleration of Scene Classification and Spectral Unmixing with Reconfigurable Computing	FEDSUB	DOE	$50,00
erjee, S	Development of Advanced Catalysts for Direct Methanol Fuel Cells	FEDSUB	DOE	$40,00
erjee, S	Improved PEM Fuel Cell MEA's based on PT Alloy Cathode Catalyst	FEDSUB	DOE	$31,00
erjee, S	Improved PEM Fuel Cell MEA's based on PT Alloy Cathode Catalyst	FEDSUB	DOE	$259,00
erjee, S	Integrated Manufacturing For Advanced Membrane Electrode Assemblies	FEDSUB	DOE	$468,00
erjee, S.	Interfacial Corrosion Science Studies: Novel Materials and In situ Synchrotron Based Spectroscopy	FEDSUB	DOE	$22,78
erjee, S	Low Cost, High Temperature Solid Polymer Electrolyte Membrane For Fuel Cells	FEDSUB	DOE	$8,00
erjee, S	Nano Phase-Segregated Co-polymers for High Temperature, Low PRessure Micro Composite Fuel Cell	FEDSUB	DOE	$72,00
mplon, P	Professional Service for Experimental Physics	FEDSUB	DOE	$19,77

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inson, R.	Synthesis of Iodinated Estrogens and Their Tributylstannylated Precursors	FEDSUB	DOE	$15,5
inson, R.	Synthesis of Iodinated Estrogens and Their Tributylstannylated Precursors	FEDSUB	DOE	$15,5
rce, G	Boston Children and Families Database	FEDSUB	DOJ	$203,7
Devitt, J.	Cops Problem Solving Partnership Program	FEDSUB	DOJ	$14,1
nter, L	GBLS Subcontract: Civil Legal Services	FEDSUB	DOJ	$76,0
eene, J	School Resource Officer Assessment	FEDSUB	DOJ	$80,7
Devitt, J	South Boston Coalition to Prevent Substance Abuse	FEDSUB	DOJ	$23,3
m, A.	Evaluation of the Youth Opportunity Grants	FEDSUB	DOL	$20,0
m, A	Evaluation of the Youth Opportunity Grants	FEDSUB	DOL	$555,0
m, A.	Youth Opportunity Area Demonstration	FEDSUB	DOL	$122,2
dh, P	Uses of Archived AVL/APC Data to Improve Transit Performance & Management	FEDSUB	DOT	$300,0
urant, R	Development of a Virtual Reality Driving Simulator for Rehabilitation Assessment Research	FEDSUB	ED	$62,9
urant, R	Development of a Virtual Reality Driving Simulator for Rehabilitation Assessment Research	FEDSUB	ED	$6,2
urant, R	Development of a Virtual Reality Driving Simulator for Rehabilitation Assessment Research	FEDSUB	ED	$20,8
rrell, P.	Massachusetts Partnership for Teacher Quality	FEDSUB	ED	$162,1
rrell, P	Massachusetts Partnership for Teacher Quality	FEDSUB	ED	$163,7
rrell, P	Massachusetts Partnership for Teacher Quality	FEDSUB	ED	$164,6
gen, C.	New England Regional Membership Conference	FEDSUB	ED	$1,0
ngolo, E.	Teaches Collaborative Community Health Planning and Develops a Model for Transatlantic Exchange	FEDSUB	ED	$9,0
Marzio, C.	2-4 MHz Multi-Element Ultrasound System	FEDSUB	HHS	$6,1
nuel, S.	Acoustics and Perception of Consonant Modifications	FEDSUB	HHS	$33,0
nuel, S.	Acoustics and Perception of Consonant Modifications	FEDSUB	HHS	$23,1
wn, L	Advanced Training Opportunities for Minorities in Science	FEDSUB	HHS	$33,8
sh, J.	Anatomic Morphologic Analysis of MR Brain Images	FEDSUB	HHS	$55,1
sh, J.	Anatomic Morphologic Analysis of MR Brain Images	FEDSUB	HHS	$56,8
sh, J.	Anatomic Morphologic Analysis of MR Brain Images	FEDSUB	HHS	$58,5
ner, L	Automatic Pronunciation Screening Test	FEDSUB	HHS	$50,7
aro, H	Behavioral Data for Prevention Programming	FEDSUB	HHS	$69,6
cinska, M.	Behavioral Evaluation of Novel DAT Antagonists as Potential Anti-Cocaine Medications	FEDSUB	HHS	$13,7
chilin, V.	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$221,5
chilin, V.	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$253,2
chilin, V.	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$14,5
chilin, V	Bioengineering Design of Artificial Blood	FEDSUB	HHS	$235,0
ining, J.	Boston: Sickle Cell Center	FEDSUB	HHS	$9,5
ining, J	Boston Sickle Cell Center	FEDSUB	HHS	$106,0
ining, J	Boston Sickle Cell Center	FEDSUB	HHS	$106,8
cks, D	Center for Bioelectric Field Modeling Simulation, and Visualization	FEDSUB	HHS	$100,7
cks, D.	Center for Bioelectric Field Modeling, Simulation & Visualization	FEDSUB	HHS	$70,5
cks, D.	Center for Bioelectric Field Modeling, Simulation & Visualization	FEDSUB	HHS	$69,0
cks, D	Center for Bioelectric Field Modeling, Simulation & Visualization	FEDSUB	HHS	$70,9
se, R	Comprehensive Detection of DNA Adducts	FEDSUB	HHS	$45,0
se, R	Comprehensive Detection of DNA Adducts	FEDSUB	HHS	$25,8
se, R	Comprehensive Detection of DNA Adducts	FEDSUB	HHS	$12,4
1, A.	Designing Viral Dynamic Studies	FEDSUB	HHS	$25,52
ey, A.	Education and Information Transfer Core	FEDSUB	HHS	$31,58
wood, J.	Etching of Csi Scintillators	FEDSUB	HHS	$90,55
w, B.	Imaging Intimal Hyperplasia Myocyte Hypoxia & Necrosis	FEDSUB	HHS	$46,37
w, B	Imaging Intimal Hyperplasia Myocyte Hypoxia & Necrosis	FEDSUB	HHS	$48,13
w, B	Imaging Intimal Hyperplasia Myocyte Hypoxia & Necrosis	FEDSUB	HHS	$79,24
ser, B.	Implementation of a 384 Capillary Sequencing System	FEDSUB	HHS	$453,50
ser, B.	Implementation of a 384 Capillary Sequencing System	FEDSUB	HHS	$419,44
ko, D	Internet-Based Nutrition Education for College Students	FEDSUB	HHS	$15,78
ko, D	Nutritional Health Information CD-ROM for College Women	FEDSUB	HHS	$10,98
rendorp, F	Regulation of Light Sensitivity by Phosducin and 14-3-3 at the Rod Synapse	FEDSUB	HHS	$65,00
ibino, G	Role of Thrombin in Sickle Vaso-occlusion	FEDSUB	HHS	$48,70
ibino, G	Role of Thrombin in Sickle Vaso-Occlusion	FEDSUB	HHS	$50,14
na, A	SCOR in Sudden Cardiac Death	FEDSUB	HHS	$62,96
na, A	SCOR in Sudden Cardiac Death	FEDSUB	HHS	$62,82

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rma, A	SCOR in Sudden Cardiac Death	FEDSUB	HHS	$86,7
ase, R.	Specificity of DNA Repair for Oxidized Abasic Sites	FEDSUB	HHS	$117,2
ase, R.	Specificity of DNA Repair for Oxidized Abasic Sites	FEDSUB	HHS	$120,7
ase, R.	Specificity of DNA Repair for Oxidized Abasic Sites	FEDSUB	HHS	$124,3
rber-Ewing, C	Stage-based Health Promotion with the Elderly	FEDSUB	HHS	$85,5
nning, J	Structure, Interaction & Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$186,4
nning, J	Structure, Interaction & Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$195,0
nning, J	Structure, Interaction & Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$222,2
nning, J.	Structure Interactions and Mechanism in Sickle Hemoglobin	FEDSUB	HHS	$190,8
nson, R	Subcontract from U Mass Medical	FEDSUB	HHS	$28,6
laro, H	Targeted Capacity Expansion HIV Intervention (Mother's Hope)	FEDSUB	HHS	$8,2
laro, H	Targeted Capacity Expansion Job Training Intervention	FEDSUB	HHS	$128,8
laro, H	Targeted Capacity Expansion Pregnant & Post Partum Intervention	FEDSUB	HHS	$128,8
uros, P	Trace Level Detection and Identification of DNA Damage	FEDSUB	HHS	$78,7
uros, P	Trace Level Detection and Identification of DNA Damage	FEDSUB	HHS	$84,2
uros, P	Trace Level Detection and Identification of DNA Damage	FEDSUB	HHS	$35,3
ner, L	Visual Automatic Feedback on Articulation	FEDSUB	HHS	$14,7
uros, P	Vitamin D Metabolism Through A-Ring Modification	FEDSUB	HHS	$29,6
uros, P	Vitamin D Metabolism Through A-Ring Modification	FEDSUB	HHS	$30,5
aro, H	Women & Violence Study (Consortium)	FEDSUB	HHS	$56,4
, C	Electrochemical Ethylene Sensor for Monitoring Low Levels in Plant Environments	FEDSUB	NASA	$4,5
rma, A.	Equiaxed Dendritic Solidification Experiment	FEDSUB	NASA	$20,0
rma, A.	Interface Pattern Selection in Directional Solidification	FEDSUB	NASA	$66,9
cco, A	Massachusetts Space Grant Consortium	FEDSUB	NASA	$15,0
ien, J.	American Humane Project	FEDSUB	NIJ	$8,3
ien, J.	Co-Producing Commercial Safety Service in PA	FEDSUB	NIJ	$12,1
ien, J.	Evaluating Community Policing in Public Housing	FEDSUB	NIJ	$8,8
ien, J.	Supporting Police Integrity	FEDSUB	NIJ	$18,0
lth, D.	Research and Outreach to Prevent and Control Aquatic Nuisance Species Invasions: Identification and	FEDSUB	NOAA	$50,3
lth, D.	Research and Outreach to Prevent and Control Aquatic Nuisance Species Invasions: Identification and	FEDSUB	NOAA	$48,3
vchenko, S	A B-O Conductor Insulator Transition on Two Dimentions	FEDSUB	NSF	$45,0
orlee, S	Bimetallic Oxygen Reduction Catalysis for Proton Exchange Membrane Fuel Cells	FEDSUB	NSF	$34,9
es, G.	Characterization of Ap4A Induced Release of Nitric Oxide From Endothelial Cells	FEDSUB	NSF	$17,2
es, G	Characterization of Ap4A Induced Release of Nitric Oxide From Endothelial Cells	FEDSUB	NSF	$17,2
es, G	Characterization of Ap4A Induced Release of Nitric Oxide From Endothelial Cells	FEDSUB	NSF	$17,2
icroft, S.	CMS Construction Project	FEDSUB	NSF	$310,0
elsen, M	Integrating Logic into the Computer Science Curriculum	FEDSUB	NSF	$119,8
lo, T.	Structural Design and Thermal control of Metal matrix Composite Coatings from Layered Precursors	FEDSUB	NSF	$117,9
lo,T	Ultrasonic Rapid Manufacturing of Meso/Microscale Functional and Active	FEDSUB	NSF	$150,3
ey, R.	Unlocking the Secrets of Nubian Culture	FEDSUB	NSF	$23,8
, A.	Development of Polymide-Based High Performance E-O Polymers	FEDSUB	ONR	$58,0
dy, D.	Multiple Access & Networking Methods for Integrated Acoustic Communications and Navigation	FEDSUB	ONR	$49,4
dy, D.	Multiple Access & Networking Methods for Integrated Acoustic Communications and Navigation	FEDSUB	ONR	$11,6
kovic, A	Nonlinear Control of Electromechanical Systems in Naval Applications Via Immersion & Invariance	FEDSUB	ONR	$198,3
dy, D.	Utility Modem and Network Development for Acoustic Telemetry	FEDSUB	ONR	$53,0
fs, K	A Genomics Approach to P. aeruginosa Biofilms	HHS		$13,77
fs, K	A Genomics Approach to P. aeruginosa Biofilms	HHS		$297,98
ard, E.	Acute Care Nurse Practioner Geriatrics Specialty	HHS		$40,16
ard, E	Acute Care Nurse Practioner Geriatrics Specialty	HHS		$151,39
ard, E	Acute Care Nurse Practioner Geriatrics Specialty	HHS		$166,30
onl, R.	Adolescent Anabolic Steroids, Vasopression & Aggression	HHS		$118,77
onl, R.	Adolescent Anabolic Steroids, Vasopression & Aggression	HHS		$9,35
holm, M.	Advanced Education Nursing Education Program	HHS		$87,93
e, R.	Analysis of DBP DNA Adducts	HHS		$79,25
e, R.	Analysis of DBP DNA Adducts	HHS		$79,25
inska, M.	Behavioral Evaluation of Novel DAT Antagonists as Potential Anti-Cocaine Medications	HHS		$55,74
ers-Lee, S.	Catalysis and Regulation of the Urea Cycle	HHS		$227,90
ers-Lee, S.	Catalysis and Regulation of the Urea Cycle	HHS		$234,73

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se, R.	Cation Labeling mass Spectrometry of DNA Adducts	HHS	$158,5
se, R.	Cation Labeling mass Spectrometry of DNA Adducts	HHS	$158,5
se, R.	Cation Labeling mass Spectrometry of DNA Adducts	HHS	$13,0
ning, J.	Chemical & Recombinant Studies on Sickle Hemoglobin	HHS	$241,3
ning, J.	Chemical & Recombinant Studies on Sickle Hemoglobin	HHS	$252,1
ning, J.	Chemical & Recombinant Studies on Sickle Hemoglobin	HHS	$258,0
lelli-Pirozzi, T.	Correlation of Blue Dye & Modified Barium Swallow Tests	HHS	$21,7
han, E	Descending Motor Control in Larval Zebra Fish	HHS	$40,1
ts, F.	Development of Mammalain Circadian Rhythms	HHS	$236,5
ts, F.	Development of Mammalain Circadian Rhythms	HHS	$213,9
ts, F	Development of Mammalain Circadian Rhythms	HHS	$213,9
uss, P.	DNA Damage Recognition by AP Endonuclease	HHS	$317,0
uss, P	DNA Damage Recognition By AP Endonuclease	HHS	$149,6
uss, P.	DNA Damage Recognition by AP Endonuclease	HHS	$414,5
son, M	Educating Health Professionals Through Partnerships	HHS	$900,0
s, S	Enhancement of Nurse Anesthesia Program to Increase Workforce Diversity	HHS	$300,8
alley, D.	Functional Organization of the Zebrafish Hindbrain	HHS	$192,2
alley, D.	Functional Organization of the Zebrafish Hindbrain	HHS	$195,2
uchesne, M	Genetics for Nursing: Response to the Revolutions in Health CARP Today	HHS	$30,0
oll, E.	Giardia Encystment: Control of GalNAc Synthesis	HHS	$152,94
nard, R	Influence of Legal Context on Tobacco Industry Behavior	HHS	$575,54
s, T.	Infrared Studies of Protein Structure and Dynamics	HHS	$208,50
s, T.	Infrared Studies of Protein Structure and Dynamics	HHS	$158,50
th, W.	Insect Model for Study of the Insulin Receptor	HHS	$165,51
th, W.	Insect Model for Study of the Insulin Receptor	HHS	$170,47
ontine, M.	Intensity DLs and masking in Normal and Impaired Hearing	HHS	$287,96
ontine, M	Intensity DLs and Masking in Normal and Impaired Hearing	HHS	$360,58
hilin, V.	Long-Circulating Polymer-Modified Liposomes	HHS	$234,24
hilin, V.	Long-Circulating Polymer-Modified Liposomes	HHS	$237,75
ros, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS	$200,50
ros, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS	$215,79
ros, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS	$29,50
ros, P.	Mass Spectrometric Studies of Dietary Carcinogen DNA-Adducts	HHS	$222,26
h, R.	Mechanical Function of Muscle During Movement	HHS	$338,65
h, R.	Mechanical Function of Muscle During Movement	HHS	$10,00
h, R.	Mechanical Function of Muscle During Movement	HHS	$301,15
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS	$86,91
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS	$124,48
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS	$215,73
hilin, V.	Micellar Carriers for Sparingly Soluble Pharmaceuticals	HHS	$226,19
er, B.	Multiplex Mass Spectrometry: In-Depth Proteome Analysis	HHS	$269,73
er, B.	Multiplex Mass Spectrometry: In-Depth Proteome Analysis	HHS	$282,23
s, K	Natural Substrates and Inhibitors of Microbial MDR Pumps	HHS	$100,27
s, K	Natural Substrates and Inhibitors of Microbial MDR Pumps	HHS	$118,87
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS	$285,41
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS	$285,41
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS	$6,74
nplon, P.	Near Ultraviolet Raman Studies of Cytochrome P450	HHS	$269,11
son, D.	Neurochemical Effects of Prenatal Cocaine in Rat Striata	HHS	$112,31
son, D.	Neurochemical Effects of Prenatal Cocaine in Rat Striata	HHS	$76,08
son, D	Neurochemical Effects of Prenatal Cocaine in Rat Striata	HHS	$59,80
ar, B	New Separation and Analytical Technologies for Proteomics	HHS	$424,981
, S.	Normal and Impaired Temporal Processing of Complex Sounds	HHS	$237,332
, S.	Normal and Impaired Temporal Processing of Complex Sounds	HHS	$9,205
ntine, M.	Normal and Impaired Temporal Processing of Complex Sounds	HHS	$253,935
, S.	Normal and Impaired Temporal Processing of Complex Sounds	HHS	$292,847
ntine, M.	Normal and Impaired Temporal Processing of Complex Sounds	HHS	$30,394
atti, P.	NU Allied Health Project	HHS	$131,917

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unkett, P.	NU Allied Health Project	HHS		$123,
ıisholm, M.	Nurse Anesthetist Traineeship Program	HHS		$16,
amer, C.	Ped Gene Action In Development and Reproduction	HHS		$285,
amer, C.	Ped Gene Action In Development and Reproduction	HHS		$285,
ıarimuttar, N	Plausibility and Syntactic Processing Load	HHS		$466,
swanathan, N.	Postnatal Maternal Entrainment Of Circadian Rhythms	HHS		$102,
swanathan, N.	Postnatal Maternal Entrainment Of Circadian Rhythms	HHS		$105,
kew, R.	Postreceptoral Color and Luminance Mechanisms	HHS		$223,
kew, R.	Postreceptoral Color and Luminance Mechanisms	HHS		$237,
att, S.	Predoctoral Fellowship	HHS		$25,
att, S.	Predoctoral Fellowship	HHS		$25,
unkett, P	Proceedings - Academic Organizational Approaches to Transforming Health Science Education	HHS		$5,
amer, C.	Protein Painting of Preimplantation Embryos	HHS		$249,
amer, C.	Protein Painting of Preimplantation Embryos	HHS		$249,
ausa, P	Sabbatical Collaboration: Redox Function of Apendonuclease	HHS		$66,
ler, J.	Some Determinants of Speech Perception	HHS		$53,
ler, J.	Some Determinants of Speech Perception	HHS		$189,
ler, J.	Some Determinants of Speech Perception	HHS		$100,
ler, J.	Some Determinants of Speech Perception	HHS		$259,
ler, J.	Some Determinants of Speech Perception	HHS		$267,
ncazio, L.	Sources of Information in Speech Perception	HHS		$31,
ncazio, L.	Sources of Information in Speech Perception	HHS		$38,
nson, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$177,
nson, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$185,
nson, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$86,
nson, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$35,
nson, R.	Specific Probes for the ER-Hormone Binding Domain	HHS		$263,
rma, A.	Spiral Wave Stability in Presence of Cardiac Memory	HHS		$46,
isholm, M.	Support for Advanced Practice Nursing Students	HHS		$109,
isholm, M	Support for Advanced Practice Nursing Students	HHS		$86,
es, S	Support for Nurse Anesthesia Students	HHS		$28,
kins, S	Training Basic Researchers With Emphasis on Minorities	HHS		$141,
kins, S	Training Basic Researchers, with Emphasis on Minorities	HHS		$167,
oth, S	NU Health	HUD		$997,
co, A	CAMMP BOP 2002	NASA		$650,
co, A	CAMMP BOP 2002	NASA		$375,
co, A	CAMMP BOP 2002	NASA		$1,025,
co, A	CAMMP BOP 2002	NASA		$120,
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$1,344,
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$895,
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$303,
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$1,322,
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$125,
co,A.	Cooperative Agreement between NASA & Center For Advanced Materials Processing at N.U.	NASA		$1,000,
ser, M	Image Processing Techniques for Satellite Data Using Reconfigurable Technology	NASA		$46,
co, A	Modeling of Macroscopic/Microscopic Transport and Growth Phenomena in Zeolite Crystals	NASA		$100,
ma, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$35,
ma, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$45,
ma, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$40,
ma, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$45,
ma, A.	Phase-field Simulations of Dendritic Growth at Low Undercooling: Confronting Theory and Experiment	NASA		$45,
hner, F	State Space Quantization in Navigation Tasks on an Eight-legged Robot	NASA		$78,87
hner, F	Team Oriented Robotic Exploration Tasks on Scorpion and K9 Platforms	NASA		$100,00
ma, A.	The Role of Dynamic Nucleation at Moving Boundaries in Phase and Microstructure Selection	NASA		$105,00
kovic, A.	A Frequency-Selective Approach to Modeling and Control in Switched Power Processing	NAVY		$70,00
kovic, A.	A Frequency-Selective Approach to Modeling and Control in Switched Power Processing	NAVY		$69,26
ria, C.	Acquisition of Liquid Phase Epitaxy Equipment	NAVY		$84,00
ria, C.	Deposition of Thick Hexagonal Ferrite Films by the LAD/LPE Techniques	NAVY		$70,00

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tofa, C	Deposition of Thick Hexagonal Ferrite Films by the LAD/LPE Techniques	NAVY	$70,[illegible]
tofa, C	Deposition of Thick Hexagonal Ferrite Films by the LAD/LPE Techniques	NAVY	$75,[illegible]
tofa, C	Developing of Broadband Circulators - A Feasibility Study	NAVY	$117,[illegible]
tofa, C	Development of Artificial Ferrites at the Atomic Scale	NAVY	$79,[illegible]
tofa, C	Development of Artificial Ferrites at the Atomic Scale	NAVY	$90,[illegible]
ers, J.	Development of Biomimetic Ambulatory & Undulatory Underwater Robotic Systems	NAVY	$282,[illegible]
vracky, P.	Development of Biomimetic Ambulatory & Undulatory Underwater Robotic Systems	NAVY	$67,[illegible]
ers, J.	Development of Biomimetic Ambulatory & Undulatory Underwater Robotic Systems	NAVY	$50,[illegible]
chner, F.	Development of Terrestrial Biomimetic Autonomous Ambulatory Robots	NAVY	$449,[illegible]
xGruer, N.	Development of Terrestrial Biomimetic Autonomous Ambulatory Robots	NAVY	$44,[illegible]
chner, F.	Development of Terrestrial Biomimetic Autonomous Ambulatory Robots	NAVY	$546,[illegible]
ers, J.	Funding for a Conference	NAVY	$25,[illegible]
ers, J.	Funding For A Conferance - Neurotechnology For Biomimetic Robots	NAVY	$15,[illegible]
an, C.	Grad Student Support & Publication cost for CFDASS Proceeding	NAVY	$24,[illegible]
chner, F	Integrating Dynamic Walking, Running & Locomotion In The Scorpion Robot	NAVY	$419,7[illegible]
dhar, S	Intrinsic Multiscale Structure & Dynamics	NAVY	$2,[illegible]
dhar, S.	Microwave Losses in Tunable Device Materials	NAVY	$74,[illegible]
dhar, S.	Microwave Losses in Tunable Device Materials	NAVY	$75,[illegible]
dhar, S.	Microwave Losses in Tunable Device Materials	NAVY	$77,[illegible]
ver, S.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY	$140,[illegible]
ver, S.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY	$400,[illegible]
tofa, C.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY	$50,5
tofa, C.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY	$296,2
tofa, C.	Monolithic High-Frequency Single-Crystal Ferrite Materials and Devices	NAVY	$65,[illegible]
dhar, S.	Proposal to Organize the ONR Superconducting Electronics Program Review and Conference	NAVY	$10,[illegible]
ers, J	Sensor Fusion Mediation at Exteroceptive Reflexes	NAVY	$49,9
ers, J	Support for the Second International Symposium on Aquabiomechanisms	NAVY	$31,7
ields, J	Underwater Range Data Communication	NAVY	$17,6
ields, J	Underwater Range Data Communications	NAVY	$24,5
ields, J	Underwater Range Data Communications (URDC)	NAVY	$31,2
rning, P	Developing A New Teaching Field World History For The 21st Century	NEAH	$40,[illegible]
rning, P	Developing a New Teaching Field: World History for the 21st Century	NEAH	$155,5
rning, P.	World History Network	NEAH	$240,[illegible]
ieis, W.	A Memory Intensive Compilation Environment Targeting VLIW and DSP Architectures	NSF	$100,[illegible]
eahan, T.	A New Experimental Approach Toward a Unified Theory of Time-Dependent Consolidation	NSF	$42,1[illegible]
nsaina, A	A Planing Meeting for Establishing an IUCRC for Microcontamination Control	NSF	$10,[illegible]
brouk, P	A Solvent Engineering Approach to the Study of Biomolecular Recognition in Heme Proteins and	NSF	$105,0[illegible]
brouk, P	A Solvent Engineering Approach to the Study of Biomolecular Recognition in Heme Proteins and	NSF	$105,0[illegible]
brouk, P	A Solvent Engineering Approach to the Study of Biomolecular Recognition in Heme Proteins and	NSF	$105,0[illegible]
man, D	Acquisition of a Low Temperature Near-Field Scanning Optical Microscope/Scanning Probe	NSF	$148,0[illegible]
ekoff, N	Acquisition of an Ultra-High-Vacuum Variable-Temperature Scanning Probe Microscope for the Study of	NSF	$107,0[illegible]
busl, O.	Acquisition of Instrumentation for Dual Ion-Beam Deposition & Analysis of Carbon Nitride Thin films	NSF	$138,9[illegible]
man, D	Acquisition of SQUID Magnetometer for Education, Teaching and Research	NSF	$148,0[illegible]
man, D.	Acquisition of Superconducting Magnet	NSF	$90,9[illegible]
g, C.	Additivity Problems in Quantum Information Theory	NSF	$84,4[illegible]
ian, M	Air Entrapment for Liquifaction Mitigation - SGER	NSF	$50,0[illegible]
vitch, M	An Engineering Research Center for Subsurface Sensing and Imaging Systems (CENSSIS)	NSF	$2,591,7[illegible]
vitch, M	An Engineering Research Center for Subsurface Sensing and Imaging Systems (CENSSIS)	NSF	$3,100,0[illegible]
vitch, M	An Engineering Research Center for Subsurface Sensing & Imaging Systems	NSF	$50,0[illegible]
nd, M.	Analysis-Based Program Transformation	NSF	$98,9[illegible]
nd, M	Analysis-Based Program Transformation	NSF	$102,3[illegible]
ris, K	Apoptosis in Bacteria	NSF	$50,0[illegible]
rman, J.	Applications of Representations of Quivers	NSF	$31,5[illegible]
rman, J.	Applications of Representations of Quivers	NSF	$31,5[illegible]
, H	Automatic Recognition of Emotion in Speech	NSF	$98,7[illegible]
raman, R.	CAREER: Algorithms for Organizing and Scheduling Distributed Resources	NSF	$115,8[illegible]
raman, R.	CAREER: Algorithms for Organizing and Scheduling Distributed Resources	NSF	$59,1[illegible]
, C	CAREER: Coordinating Primary & Secondary Metabolic Activities for Enhancing Terpenoid Indole	NSF	$75,0[illegible]

ivision of Sponsored Project Administration

ilein, S.	Cataloguing Diversity of Ciliated Protists Through the Synergy of Morphological and Genetic Approaches	NSF	$279,5
ilein, S	Cataloguing Diversity of Ciliated Protists Through the Synergy of Morphological and Genetic Approaches	NSF	$12,0
orla, C	Ceramic Artificial Ferrite Prepared by Laser	NSF	$36,0
icroft, S.	CMS Construction Project	NSF	$3,959,9
icroft, S.	CMS Construction Project	NSF	$4,074,0
ine, M	Cohomology Theories for Algebraic Varieties	NSF	$44,0
eriherr, K	Collaboration - Oriented Aspects	NSF	$39,9
rwood, J	Collaborative Research: Scaling of Microwave Plasma Sources to Small Dimensions	NSF	$54,6
rwood, J	Collaborative Research: Scaling of Microwave Plasma Sources to Small Dimensions	NSF	$58,8
rwood, J	Collaborative Research: Scaling of Microwave Plasma Sources to Small Dimensions	NSF	$58,3
Stano, D	Collaborative Research: The Effect of Emotions on Automatic Intergroup Evaluation, Goals, and	NSF	$32,5
vchenko, S	Collabrcative Research: Study of Novel Phases in Two Dimensional Electron Systems in High B/T	NSF	$149,7
ala, R.	Computer Science Laboratory Projects That Provide Breadth Through Depth	NSF	$49,5
ala, R.	Computer Science Laboratory Projects That Provide Breadth Through Depth	NSF	$32,2
elsen, M	Computing Education for Every Student in Secondary Schools	NSF	$627,0
elsen, M	Computing Education for Every Student in Secondary Schools	NSF	$623,8
ce, G.	Connections to the Internet	NSF	$145,4
ila-Fascetti, S.	Connections: Women in Sciences, Engineering and Math (SEM) Making Connections Between	NSF	$299,64
ila-Fascetti, S.	Connections: Women in Sciences, Engineering and Math (SEM) Making Connections Between	NSF	$299,2
icroft, S.	Continuation of REU Site at CERN	NSF	$104,2
icroft, S.	Continuation of REU Site at CERN	NSF	$64,0
icroft, S.	Continuation of REU Site at CERN	NSF	$104,2
naina, A	Cooperative Research with Korea: Study of the adhesion between Slurry Particles and Water Surface	NSF	$24,3
ahan, T	Developing a Reactive Geocomposite to Remediate Contaminated, Subaqueous Sediments	NSF	$100,0
ney, D.	Development of a New Genetic Transformation Technique for Maine Algae	NSF	$54,11
ousi, O.	Development of an Ultrasound Based System for Dynamic Intracoronary Plaque Characterization	NSF	$62,53
ousi, O.	Development of an Ultrasound Based System for Dynamic Intracoronary Plaque Characterization	NSF	$62,13
er, S.	Development of Hexaferrite Films for Integrated Optical Waveguide Isolators	NSF	$239,87
asc, A.	Development of Physical Programming for Robust computational Design	NSF	$25,00
ella, R	Discovering and Using the Knowledge in Biology Text	NSF	$99,28
eskv, D.	Distributed Systems With Sift, Based on Cols	NSF	$220,18
mor, G	Embedded Systems For Feedback Mixing Control in Fluid Flow	NSF	$80,00
naina, A	Establishing an IUCRC for Microcontamination Control Site at Northeastern	NSF	$50,00
croft, S.	Experimental Particle Physics	NSF	$793,04
croft, S.	Experimental Particle Physics	NSF	$793,04
croft, S.	Experimental Particle Physics	NSF	$159,73
croft, S	Experimental Particle Physics	NSF	$200,00
loin, S	Exploratory Research on Arctic Microbial Diversity	NSF	$34,13
nan, D.	Ferromagnetism in Semiconductors	NSF	$10,00
nan, D.	Ferromagnetism in Semiconductors	NSF	$10,00
arzo, C	Generalized Ocular Atlases for Ophthalmic Surgery	NSF	$150,00
mor, G	GOALI: Control and Observation of Mixing in Fluid Flow	NSF	$180,00
nevan, J	GOALI: Statistical Quality Control Methods for Health Systems Problems	NSF	$71,14
nevan, J	GOALI: Statistical Quality Control Methods for Health Systems Problems	NSF	$74,70
nevan, J	GOALI: Statistical Quality Control Methods for Health Systems Problems	NSF	$76,43
elin, S	Hidden Microbial Diversity of the Sea: Testing a Novel Approach to Cultivating Presently Uncultivable	NSF	$65,73
Arl, H	Hilbert Space Tools for Modeling & Compensation of Reactive Power in Energy Processing Systems	NSF	$270,00
ousi, O	Hydrogen Production by Photovoltak Powered Electrolysis	NSF	$32,80
ich, W	ICEFISH 2003: International Collaborative Expedition to Collect and Study Fish Indigenous to	NSF	$156,10
itch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF	$1,201,17
itch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF	$191,00
itch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF	$987,78
itch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF	$191,50
itch, M.	IMPACT: A Regional Curriculum Implementation Effort	NSF	$1,038,25
berg, B.	Indexing and Reorganization in Parallel Database Systems	NSF	$79,91
berg, B.	Indexing and Reorganization in Parallel Database Systems	NSF	$84,65
swabkeh, A.	Innovative Soil Remediation Methodologies	NSF	$375,00
s, J.	Integrating Economic and Environmental Assessment in Advanced Materials Processing	NSF	$25,00

aacs, J	Integrating Economic and Environmental Assessment in Advanced Materials Processing	NSF	$25,(
sleis, W.	Interprocedural Value-Based Program Optimization	NSF	$10,(
ller, E	Inverse Scattering Models ad Algorithms for Functional Imaging with Diffuse Optical Wavefields	NSF	$60,(
ırk, B	ITR/EWF: New Approaches to Human Capital Development Through Information Technology Research	NSF	$767,(
ırk, B	ITR/EWF: New Approaches to Human Capital Development Through Information Technology Research	NSF	$10,(
u, F.	Lattice Models and Applications	NSF	$225,(
u, F.	Lattice Models and Applications	NSF	$10,(
u, F.	Lattice Models and Applications	NSF	$10,(
u, F.	Lattice Models and Applications	NSF	$10,(
avchenko, S.	Metallic Behavior of Two-Dimensional Semiconductors	NSF	$49,(
avchenko, S.	Metallic Behavior of Two-Dimensional Semiconductors	NSF	$98,(
avchenko, S.	Metallic Behavior of Two-Dimensional Semiconductors	NSF	$98,(
xGruer, N.	Micro Gas Analyzer	NSF	$472,(
nger, W	Modelling Generational Garbage Collection	NSF	$250,(
assad, S	Monolithic Integrated Circuits for Biomedical Sensor Applications	NSF	$159,5
ventman, P	Multiple Pathways Toward Gender Equity in The IT Workforce	NSF	$674,1
aeloff, N	Nanoscale Spatio-Temporal Glassy Dynamics	NSF	$54,1
dil, D.	Novel High-Field EPR Studies of Photosynthetic Reaction Centers	NSF	$65,(
ickman, D.	NSF Graduate Teaching Fellows in K-12 Education	NSF	$333,2
ickman, D	NSF Graduate Teaching Fellows in K-12 Education	NSF	$361,6
ge, T.	Nuclear Resonance Spectroscopy of Biomolecules	NSF	$224,4
rendis, Y.	On the Emissions of PAH, PM and Other Pollutants From Burning Organic Wastes Targeting	NSF	$135,5
rendis, Y.	On the Emissions of PAH, PM and Other Pollutants From Burning Organic Wastes Targeting	NSF	$120,3
rendis, Y.	On the Emissions of PAH, PM and Other Pollutants From Burning Organic Wastes Targeting	NSF	$120,0
Marzio, C	Partnership in Education and Research: Engineering the Future of Biomedical Subsurface Imaging	NSF	$244,7
an, C.	Plasma Chemistry Study in Plasma Doping	NSF	$89,4
an, C.	Plasma Chemistry Study in Plasma Doping	NSF	$80,6
an, C.	Plasma Chemistry Study in Plasma Doping	NSF	$82,8
evinsky, A	Polyhedral Combination in Representation Theory & Algebraic Geometry	NSF	$53,7
evinsky, A.	Polyhedral Combinatorics in Representation Theory and Algebraic Geometry	NSF	$26,0
evinsky, A.	Polyhedral Combinatorics in Representation Theory and Algebraic Geometry	NSF	$26,0
), C	POWRE: Directing Indole Alkaloid Synthesis from Catharanthus Roseus Cultures	NSF	$74,9
), C	POWRE: Directing Indole Alkaloid Synthesis from Catharanthus Roseus Cultures	NSF	$6,0
drechen, M	POWRE: Enzyme-Substrate Interactions Mediated by Vitamin B6	NSF	$75,0
dia-Fascetti,S.	Predicting Bridge Life-Cycle Deterioration: Integrating Condition States with System Performance	NSF	$25,0
dia-Fascetti,S.	Predicting Bridge Life-Cycle Deterioration: Integrating Condition States with System Performance	NSF	$9,0
ter, T.	Preparation Characterization & Kinetic Behavior of Unique Carbon Supported Bimetallic Cu Catalysts for	NSF	$58,8
ter, T.	Preparation Characterization & Kinetic Behavior of Unique Carbon Supported Bimetallic Cu Catalysts for	NSF	$110,0
svth, D	Preparation Characterization & Kinetic Behavior of Unique Carbon Supported Bimetallic Cu Catalysts for	NSF	$9,1
noloff, N.	Probing Fluctuations and Nanoscale Dynamics in Glasses and other complex Materials	NSF	$6,0
narthi, S	Product, Process, and System Monitoring and Diagnostics	NSF	$175,0
eis, W	Profile-Driven Compile-Time Optimizations Targeting Commodity Desktop Environment	NSF	$9,7
thar, S.	Quantum Chaos and Electromagnetic Chaos	NSF	$5,0
thar, S	Quantum Chaos and Electromagnetic Chaos	NSF	$169,8
thar, S	Quantum Chaos and Electromagnetic Chaos	NSF	$130,0
vitch, M	Research Experience for Teachers (supplement)	NSF	$150,0
icroft, S.	Research Experiences for Undergraduates at CERN	NSF	$112,8
icroft, S.	Research Experiences for Undergraduates at CERN	NSF	$59,1
ics, J	Research for Multi Disciplinary Principles in Manufacturing	NSF	$24,4
h, P.	Research in Particle Theory	NSF	$104,8
lor, T.	Research in Particle Theory	NSF	$105,0
dberd, H	Research on Elementary Particle Theory	NSF	$40,0
dberd, H	Research on Elementary Particle Theory	NSF	$40,0
dberd, H	Research on Elementary Particle Theory	NSF	$40,0
mplon, P.	Resonance Raman Studies of Election Nuclear Coupling, Time Resolved Dynamics and Magnetic	NSF	$5,0
e, T.	Resonance Raman Studies of Election Nuclear Coupling, Time Resolved Dynamics and Magnetic	NSF	$125,0
mplon, P.	Resonance Raman Studies of Election Nuclear Coupling, Time Resolved Dynamics and Magnetic	NSF	$120,0
mplon, P	Resonance Raman Studies of Electron Nuclear Coupling, Time Resolved Dynamics & Magnetic	NSF	$200,0

Knight, S	REU Supplement for CenSSIS	NSF		$52,5
zners, E	RNA Having Imidazole Functionality: A Novel Biopolymer Mimic for Design of Artificial Catalysts	NSF		$42,6
operman, G	Scalable Parallel Symbolic Computation for Irregular Problems	NSF		$85,2
lotta, C	Self-biased Y-function Circulators	NSF		$72,1
ind, M.	Semantics of Implicit Procedure-Calling Mechanisms	NSF		$214,2
werman, M	Spectral Invariants of Deformed Dirac Operators on Open G-Manifolds	NSF		$96,1
l, J.	Status/Dominance and Motivational Effects on Nonverbal Sensitivity and Smiling	NSF		$5,0
rning, J.	Structure and Role of D-Amino Acid Transminase	NSF		$85,0
ttich, W.	Structure, Function, and Expression of Tubulins, Globins, and Microtubule-Dependent Motors from	NSF		$166,2
ttich, W.	Structure, Function, and Expression of Tubulins, Globins, and Microtubule-Dependent Motors from	NSF		$209,9
ttich, W	Structure, Function, and Expression of Tubulins, Globins, and Microtubule-Dependent Motors from	NSF		$190,6
ntimutter, N.	Syntactic Processes in Sentence Comprehension	NSF		$139,9
ntimutter, N.	Syntactic Processes in Sentence Comprehension	NSF		$3,2
F.	The Development of Number Concepts	NSF		$124,8
ith, D.	The Influence of Water Temperature on Predator-Induced Defensive Responses and Life-History	NSF		$80,5
ith, D.	The Influence of Water Temperature on Predator-Induced Defensive Responses and Life-History	NSF		$35,2
F	The Role of Language in the Acquisition of Kind Concepts	NSF		$41,9
vers, W.	The Role of Race in Punishing Criminal Violence: Jury Sentencing in Capital Cases	NSF		$249,5
nelle, R.	The Structure and Content of Diagrams	NSF		$142,5
nelle, R.	The Structure and Content of Diagrams	NSF		$135,5
nelle, R.	The Structure and Content of Diagrams	NSF		$21,7
brouk, P.	The Use of Non Aqueous Media to Probe Oxyferryl Metalloenzyme Intermediates	NSF		$4,9
drachen, M	THEMATICS: Development & Application of a New Computational Tool for Functional Genomics	NSF		$201,8
e, J.	Theoretical Studies of Quantum Chaos	NSF		$87,0
e, J.	Theoretical Studies of Quantum Chaos	NSF		$49,9
e, J	Theoretical Studies of Quantum Chaos	NSF		$50,0
ibin, M	Topics in Analysis on Non-Compact Manifolds	NSF		$40,0
ibin, M	Topics in Analysis on Non-Compact Manifolds	NSF		$40,0
ku, A	Topology of Hyperplane Arrangement	NSF		$33,5
ku, A	Topology of Hyperplane Arrangement	NSF		$33,5
ar, E	Toward a United Approach to Diffuse Wave Inverse Problems	NSF		$124,9
e, P	Tractable Formal Methods for the Synthesis of concurrent Programs	NSF		$66,9
es, G	Prostate Activated Prodrugs and Imaging Agents	OTHERDO	Army	$547,6
uffa, E.	Research in Discrete Geometry and Geometric Group Theory	OTHERDO	NSA	$22,6
ibbour, E.	20th Anniversary Meeting of IHSS	OTHERFED		$7,1
sloff, N	Assist State University of World Languages to Strengthen Democratic Foundations of Journalism	OTHERFED		$200,0
sso, J	Athletes in Service to America	OTHERFED		$1,041,1
mv, A	Athletes in Service to America	OTHERFED		$229,8
mv, A	Athletes in Service to America	OTHERFED		$857,0
id, S.	Athletes in Service to America Program	OTHERFED		$84,7
man, B	COBASE Project Development & Initiation Grant	OTHERFED		$6,8
man, E.	Community Health Service Corp.	OTHERFED		$35,2
stone, B.	FMCS "Resource Kit"	OTHERFED		$119,9
stone, B.	FMCS "Resource Kit"	OTHERFED		$100,4
stone, B.	FMCS "Resource Kit"	OTHERFED		$80,0
x, E.	Funding of Patrick Rennich	OTHERFED		$26,3
vitch, M.	Innovative Technologies for Application to Satellite-Assisted Prediction of Earthquakes	OTHERFED		$249,9
ala, R	NIST SURF Program	OTHERFED		$5,8
man, E.	Service Learning Corps	OTHERFE		$212,5
paport, C	Electromagnetics Modeling for Detection of Buried Objects	OTHERFED	AFOSR	$7,9

APPENDIX E -- WRITTEN STATEMENT OF DR. GORDON WINSTON, PROFESSOR OF ECONOMICS, WILLIAMS COLLEGE, WILLIAMSTOWN, MASSACHUSETTS

Statement

for Hearings of the House Committee on Education and The Workforce

October 2, 2002

Gordon Winston, Professor of Economics, Williams College

(*gwinston@Williams.edu*)

Probably the most useful thing I can convey to you today is why the economic analysis of higher education – formally or intuitively – is so hard to get right and so easy to mess up. Worse, it's easy to feel like you understand it while you're messing it up. I speak from experience. As an economist with a Stanford PhD, I spent three or four confused and painful years in the administrative trenches – part of it as Provost at Williams – trying to figure out why familiar economic theory – and economic common sense – so often went awry. Some things, thankfully, have become clear and that's what I want to share with you today.

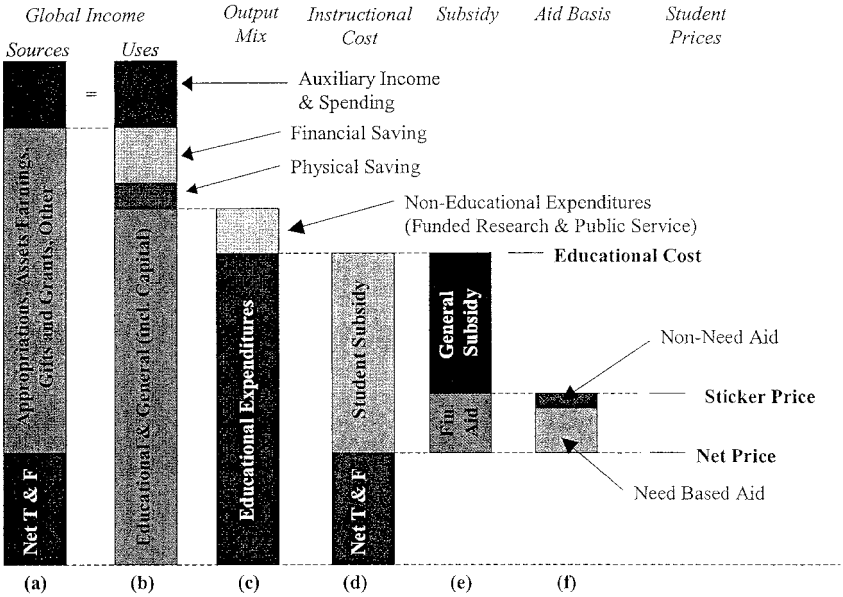
Most basic, is that colleges and universities look a lot like ordinary businesses and higher education looks a lot like an ordinary industry. Colleges make a product (educational services) using purchased inputs (faculty labor, heating oil, buildings…) and they sell the product to customers (students) for a price (tuition). As an industry, those colleges compete hard for students to whom to sell their product.

But, those comforting parallels with familiar businesses are only skin deep. There are very (very) fundamental economic characteristics that keep the comfortable analogies – and economic theory and economic intuition – from working well for higher education. Indeed, the hardest part of it, I think, is unlearning all that stuff that makes so much sense so much of the time – and both the PhD with his economic theories and the ordinary person with their economic intuition and common sense face the same problem – that our experience has been with ordinary businesses and ordinary industries so it's very hard to shift gears to understand firms and an industry that are not at all ordinary.

The figure on the next page is a good place to start. I won't dwell on it, but it shows graphically the financial difference between a college and a business firm. It shows the sources of revenues (resources) in the first bar – where the money comes from – and the uses of those resources in the second bar – where it goes. (Per student, for a typical college or university, based on 1995-6 US averages from NCES-IPEDS data.)

In that figure – and in the table that follows it – is probably the most important single fact in understanding college costs and prices – and the most fundamental economic difference with ordinary businesses. The price the student-customer pays for his or her education is strikingly *less* than the cost of its production. In the data behind the graph (see the table), it cost $12,400 a year to educate a student in the average American college in 1995-6. But he or she paid a price of $4,000. So each student got a subsidy of $8,400 a year, on average. It's as if the Taurus that cost your Ford dealer

Global Income, Costs, Prices, Subsidies, & Aid per FTE Student



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The Distribution of Average Cost, Price and Student Subsidies

1995-96

	Subsidy per Student	Average Educational Cost per Student	Average Net Tuition per Student	Price/ Cost Ratio
All Colleges and Universities	$8,423	$12,413	$3,989	32%
Public	$8,590	$9,896	$1,305	13%
Private	$8,253	$14,986	$6,734	45%
Schools ranked by Student Subsidies:				
Decile 1	$20,991	$27,054	$6,063	22%
Decile 2	$11,865	$15,801	$3,936	25%
Decile 3	$10,009	$13,310	$3,301	25%
Decile 4	$8,752	$11,831	$3,080	26%
Decile 5	$7,855	$10,565	$2,710	26%
Decile 6	$7,020	$9,820	$2,799	29%
Decile 7	$6,250	$9,464	$3,214	34%
Decile 8	$5,447	$8,848	$3,401	38%
Decile 9	$4,262	$9,297	$5,035	54%
Decile 10	$1,736	$8,084	$6,348	79%

Source: Based on US Department of Education IPEDS data. Includes 2791 institutions, of which 1411 are public and 1380 are private. All dollar amounts are per FTE student averaged over institutions. See Winston, Gordon C and Ivan C. Yen, "Costs, Prices, Subsidies, and Aid in U.S. Higher Education" Discussion Paper No. 32, Williams Project on the Economics of Higher Education, July, 1995, for details on the derivation of these data from the IPEDS Finance Survey (Medical schools are omitted here).

$20,000 to put on the showroom floor were sold for less than $7,000 – regularly and routinely (and if you were poor or an exceptionally good driver, you might pay even less – about which more below). Clearly, no ordinary Ford dealer would survive.

But colleges do. That's because the student subsidy is paid for by "charitable contributions," broadly defined to include private and public donations to the college, past and present – appropriations, gifts, returns on endowments and other wealth. So the average student paid just 32 cents on the dollar for his or her education – and in public sector schools, that price falls to 13 cents on the dollar. It's a bit cute, but a useful reminder, to think of colleges and universities as "part church and part car dealer" – they're charities, giving things away, at the same time that they're commercial firms, selling a product to their student-customers for a price, tuition. So, natural though it is to try, they can't be understood simply as car dealers. Indeed, over all of US higher education, it appears that 75% of colleges' resources come to them in their charitable role and only 25% from commercial sales revenues.

A useful implication is that those charitable contributions break the ordinary link between price and cost found in an ordinary firm where price increases can usually be explained by cost increases (indeed, if you paid attention in Econ 101, you were told that "in a long run competitive equilibrium, price will come to equal unit cost"). But in a college, where price (tuition) plus subsidy equals unit cost, it's clear that tuition might go up because costs go up, but it can also go up because those charitable contributions go down. And that, of course, is what's happening in a lot of public higher education right

now – states are cutting per-student appropriations, leaving public sector schools to either cut their production costs (and quality) or raise tuition, or do a bit of both.

But that's not the end of it on pricing. There's a posted sticker price for a year of college – the one the press makes much when the College Board report comes out every fall – but not everybody pays that sticker price – indeed estimates for NACUBO suggest that in the group of small private colleges they sampled, only ten percent of the entering freshmen are "full pay" students, the rest get price discounts in the form of scholarships or financial aid. So it's important not to be misled (as the press so often is) by changes in sticker price and think that they are changes in what people actually pay. In a nice recent study, Amy Schwartz and Ben Scafidi (at NYU and Georgia State, respectively) corrected the higher education component of the CPI to recognize the net prices people actually pay and when they did, the "rate of inflation" fell markedly.

But – one more point on pricing and a basic difference between a college and a firm – those price discounts are often given for the most ordinary of business reasons – to make the product more attractive to reluctant customers (filling seats and/or improving student quality). That's merit aid or a scholarship.

However, a good deal of that price discounting is in service of the ideal of "equality of opportunity" – when financial aid is given to a qualified student who isn't able to afford even a school's highly subsidized tuition room board and fees. "Need-based financial aid." That one is not at all compatible with business experience – it's as

if the local Porsche dealer felt so strongly that every very good driver should have a high-performance car, that he priced his 911s so that even the poorest of excellent drivers in the town could afford one. We recently did a study of the prices actually paid by Williams students, relative to their family incomes, and found that kids who come from families in the bottom national income quintile – less than $24,000 a year – pay on average just $1,683 for a year at Williams. (The sticker price was $32,470). In this, Williams is typical of those high quality schools that use need-blind admission and give full-need aid – Princeton, Harvard, Swarthmore, Yale, Amherst, Stanford, etc....

Two more key elements in the economics of higher education – and key differences with familiar firms and industries – then I'll stop:

Those charitable donations to colleges and universities are very unevenly distributed among them. The rich schools are very much richer than the poor and most of the 3,400 institutions in the US are somewhere in between. There's Princeton or Williams at the one end with, at Williams, more than $800,000 of wealth per student – so they can sell a $75,000 a year education for that sticker price of $32,470 (and an average price, net of financial aid, of $24,000) – while at the other end, in the bottom quintile, a struggling little school with little more wealth than their (heavily mortgaged) buildings, charges $6,400 a year for an education that costs $8,100 to produce. Overall, a kid in the average top decile school gets a yearly subsidy of $21,000 while one in a bottom decile school gets $1,700 (the average Williams student – as implied by the numbers above – gets $51,000 in subsidy each year). The table above is useful in giving a sense of this –

of the national averages of costs and prices and subsidies and how they're distributed between public and private sectors and among schools, ranked there by the size of their student subsidies.

The message to take from this is, in the jargon, "Heterogeneity." It's misleading and will often make bad policy to think of "higher education" or "colleges" as if all schools were the same, facing the same problems and incentives and opportunities.

Let me add the last existential-economic fact that makes colleges very different from the businesses we're familiar with. It has to do with the way they make their product – the way they produce educational services. It's the fact that students help educate students. In the jargon of Econ 101, our customers supply an input (student quality) to our production (of educational services) that we can't buy anywhere else (in the jargon of a more advanced econ course, customer quality "creates an externality" in the production of education). There are "peer effects." In my last car example, it's as if the quality of the car you got from your Ford dealer depended on the quality of the other drivers who bought cars there – if they were very good drivers, your Ford would turn into a BMW. So – the reason this is so important – schools that can afford to, CARE very much about who they sell their product to – who they admit. They're not indifferent, as are most business firms, because good students help produce a good education and poor students don't. That means that a major focus of competition, especially between wealthy schools, isn't for paying student/customers, per se – for sales – it's for <u>good</u> students – for high quality inputs to their production.

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I want to end with a shift from schools to students – especially the low-income students that have long been a responsibility of the Federal government, protecting equality of opportunity. The low-income superstar going to a rich school is doing very well, as evident in the net tuition of $1,683 for the low-income kid we described above. "Need-blind admission with (full) need-based financial aid" works.

But the worry is that the good-but-not-great low-income kid – and the average – are being lost. Competition for student quality with price-discounts to the strongest students can simply use up available financial aid resources on the wealthy kids who can be bought for less – who need smaller price discounts – than the equally high quality poor kids. And – your arena – there's been an abandonment of those kids by the Federal government in favor of middle income kids. This isn't my area of concentration, but those who have looked at HOPE programs and tuition tax credits and the decline of Pell grants as a fraction of college costs conclude that government tuition supplements are increasingly targeted at those who'd go to college anyway and colleges like Georgia's are using their increased enrollment pressure to improve their student quality. The low-income kids – the focus of equality of opportunity – appear in danger of serious neglect.

I'd want to leave you with this:

- Don't trust your economic intuition or common sense or Econ 101 in thinking about prices and costs in higher education – it's a very odd industry, quite unlike

what we're all familiar with. "Part church and part car dealer" can be a useful mantra and reminder,

- Prices (tuitions) cover roughly one-third of production costs – the rest comes from donations,
- Cost is only loosely related to price so price changes can't usually be explained by cost changes - they can often better be explained by changes in donations,
- There's a sharp hierarchy of schools, based largely on those donations and the resulting wealth, that makes generalizations over all schools quite likely to be wrong,
- Students educate students so schools care about who they sell to and much of the competition between them – especially at the top of the hierarchy – is for student quality, not for sales,
- Low-income superstar students are doing very well at Princeton and Amherst and Swarthmore… but more ordinary poor kids are being abandoned by private price competition and by the shift of state and Federal support to the middle class.

Let me end with the fact that a great deal of useful economic research on higher education – including much of what I've talked about today - has been done at the Williams Project on the Economics of Higher education, with some 63 research papers and studies available for downloading from *www.Williams.edu/wpehe*.

House Hearings, 10/2/02

Committee on Education and the Workforce

Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

Your Name: Gordon C. Winston		
1. Will you be representing a federal, State, or local government entity? (If the answer is yes please contact the committee).	Yes	No ✓
2. Please list any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1999:		
3. Will you be representing an entity other than a government entity?	Yes	No ✓
4. Other than yourself, please list what entity or entities you will be representing:		
5. Please list any offices or elected positions held and/or briefly describe your representational capacity with each of the entities you listed in response to question 4:		
6. Please list any federal grants or contracts (including subgrants or subcontracts) received by the entities you listed in response to question 4 since October 1, 1999, including the source and amount of each grant or contract:		
7. Are there parent organizations, subsidiaries, or partnerships to the entities you disclosed in response to question number 4 that you will not be representing? If so, please list:	Yes	No ✓

Signature: [signature] Date: 9/30/02

[illegible] written testimony

APPENDIX F -- WASHINGTON POST ARTICLE SUBMITTED FOR THE RECORD BY REPRESENTATIVE ROBERT C. "BOBBY" SCOTT, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C.

10/3
Washington
Post

include a half brother,
ens of New York.

e Feather

ice Feather, 72, a retired
also was active in commu-
r groups, died of lung can-
9 at the Gilchrist Center
Care in Baltimore.
ather, who lived in Ellicott
orn in Terre Haute, Ind.,
p in Indiana and Rockville.
a graduate of Bethesda-
se High School. She gradu-
Indiana State University
ed a master's degree from
s School of Dramatic Arts.
n actress in New York, ap-
productions on and off

id-1960s, she moved back
d, where she was active in
theater groups. She stud-
y at Montgomery College,
egistered nurse and for 12
ed at the Maryland Shock
nter in Baltimore and then
Manor in Ellicott City,
was a psychiatric nurse.
in 1991.
ment, she acted in commu-
r productions.
s include her husband,
eather of Ellicott City; and
former U.S. senator Birch
d.) of Chevy Chase.

Cuozzo Vagnoni

n Native

a Cuozzo Vagnoni, 78, a
shingtonian and graduate
High School who was a
erator for the War Produc-
d in the early 1940s, died
her home in Annapolis. She
astic cancer.
agnoni, a former Hyattsville
had been a member of St.
atholic Church in Hyatts-

bies included cooking.
s include her husband of
Luigi Vagnoni of Annapolis;
, Steve Vagnoni of Gaithers-
seph Vagnoni of Westport,
Michael Vagnoni of West
nip, Md., and Luigi "Buddy"
Jr. of Chevy Chase; three sis-
ry Sciacca of Bowie, Joseph-
noni of Wheaton and Amelia
n of Hyattsville; and 11 grand-
n.

Dale Wagner

epresentative

Dale Wagner, 36, who was
a Prince George's County
ecution Sept. 29, died recently
a new career as a sales repre-
e with Metropolitan Siding
ofing Co.
ding to Maryland State Po-
Wagner's car was stopped on
Avenue at Woodyard Road
was hit by another vehicle.
gner was pronounced dead at
n Maryland Hospital Center.
as a lifelong resident of Wal-
d a graduate of Thomas Stone
School. He had attended

Warner Tells Colleges to Prepare for Budget Cuts

Governor Seeks Passage Of Nov. 5 Bond Initiative

By a Washington Post Staff Writer

RICHMOND, Oct. 2—Gov. Mark R. Warner urged Virginia's public universities today to brace for larger classes, fewer course offerings and other cutbacks as the state budget crisis deepens. College presidents said they were already planning for mid-year tuition increases, layoffs and the elimination of significant academic programs and research.

Making a last-minute push on behalf of a bond initiative for higher education that voters will decide on Nov. 5, Warner (D) offered one of his most detailed assessments of the nearly $2 billion budget shortfall facing his administration, saying it will lead to "cuts in the very fabric of the safety net" and ripple across a public college system long regarded as one of the nation's finest.

"I know—and can see on your faces—this is not the rah-rah speech that perhaps you wanted to hear," Warner told a luncheon audience of the Virginia Business Higher Education Council, a group of corporate leaders who lobby for sustained public aid to the state's 15 four-year colleges and its community college system.

John T. "Tip" Hazel Jr., a Northern Virginia real estate developer who is the council's driving force, implored fellow business leaders to redouble their efforts to win passage of the nearly $1 billion bond program, saying it was "just the warm-up" for a General Assembly session that could leave state schools scrambling to meet as much as $500 million in unfunded needs.

"I have sympathy for what they're about to face," Hazel said, referring to the dozen college presidents at lunch. "I offer them my hearty condolences."

Warner, Hazel and other advocates of the college bond initiative said they are worried that it could get lost in the clutter of the ballot. Though free of any exciting political races, it will have two major sales tax referendums in the most populous corners of the state, Northern Virginia and Hampton Roads. Advocates are spending about $1 million, including six-figure gifts from several large schools, on a statewide ad campaign to distinguish the referendum on the college bonds from the more controversial ballot questions on raising the sales tax to support transportation projects.

It has been 10 years since Virginia voters last approved a major infusion of money to help universities with their construction programs, which means that thousands of residents may be unfamiliar with the concept of approving long-term debt to pay for major campus buildings and renovations. Still, even nervous advocates said they were guardedly optimistic about the bond question passing next month.

That was the lone bright spot today, as Warner used yet another public forum to outline the stark realities of impending budget cuts. He noted that, like every other state agency, individual colleges have submitted proposals to cut campus spending by up to 15 percent, and he predicted that students will be "taking longer to graduate" and fewer state dollars will be available to leverage private research grants.

FILE PHOTO

Gov. Mark R. Warner said universities may have to live with fewer courses and larger classes to help make up a $2 billion state budget shortfall.

Warner will announce his budget cuts Oct. 15. The Republican-led General Assembly is waiting for him to show his cards first on reductions that both government branches will grapple with in the new year.

University leaders said morale has dipped at their institutions, which bore the brunt of state budget cuts in the 1990-91 recession.

"It's the uncertainty; everyone is concerned," said Eddie N. Moore Jr., president of Virginia State University near Petersburg. VSU expects to freeze most hiring and is considering raising the annual tuition and fees, now $3,564, for a second time in less than a year, Moore added.

Similarly, John T. Casteen III, president of the University of Virginia in Charlottesville, said he expects the university's board to approve a midyear tuition increase or raise surcharges to help offset state budget cuts. Casteen said the faculty and staff are somewhat inured to the continuous cycle of budget contractions, because the state has fully funded salary guidelines only once in the past 12 years.

"Our people have had plenty of time to digest it," Casteen said of the coming retrenchment. "Nobody likes it, obviously."

George Mason University President Alan G. Merten said a full 15 percent cut could have a debilitating effect on his Fairfax County-based school, forcing an enrollment freeze, hurting financial aid and eliminating the writing and math centers. GMU, which has 14,000 full-time students, recently raised tuition by $600 to $4,500, one of the largest increases in the state system this year.

"On the operating side, financially, it's the worst of times, but on the other side—enrollment and interest in the institution—it's the best of times," Merten said. "I wake up in the morning, I don't know whether to be happy or sick."

APPENDIX G – WRITTEN STATEMENT SUBMITTED FOR THE RECORD BY REPRESENTATIVE PETER HOEKSTRA, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C.

Statement for Rep. Pete Hoekstra
October 2, 2002 Hearing on Rising Price of Postsecondary Education

I sincerely believe that higher education, and the costs associated with higher education, are important and timely issues for this committee to examine in depth. We know that many students find it necessary to borrow in order to pay for higher education. The cost of education has grown, and continues to grow, at a rate far greater than inflation. This year, 1.7 million college graduates will enter the U.S. workforce with nearly $18,000 in average student loan debt.

While solutions and responses to this costs of education vary, and include measures such as increased state funds, fiscal restraint on the part of institutions, additional money for work-study programs, tax credits for individual higher education expenses, and maintaining Pell Grants at their historic high of $4,000, there is something that this committee can do now to address this situation.

With today's current interest rate environment student loan borrowers have a once in a lifetime opportunity to lock in the lowest interest rates in the history of the student loan program. Borrowers from lower- and middle-income families will have the chance to lock in rates that could be as low as 3.50% for the life of the loan. In short, there may be no better opportunity for borrowers to lock in low rates than there will be between July 1, 2002 and June 30, 2003.

Unfortunately, many of today's borrowers are unlikely to take advantage of this opportunity, because their student loan providers do not actively attempt to educate borrowers about this program. In fact, many current loan holders actively discourage borrowers from consolidation loans, because it is not as profitable for the lenders.

It is my hope that this committee will sense the urgency of this situation, and act on HR 3273 before the reauthorization of the Higher Education Act. HR 3273 would provide student loan borrowers with a choice of lender for loan consolidation, and at a time when interest rates are at an historic low, this legislation requires timely action.

APPENDIX H – WRITTEN STATEMENT SUBMITTED FOR THE RECORD BY REPRESENTATIVE HAROLD FORD, JR., COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C.

Congressman Harold Ford, Jr.
Committee on Education and the Workforce
Hearing on "The Rising Price of a Quality Postsecondary Education: Fact or Fiction?"
October 2, 2002

Mr. Chairman, thank you for holding this hearing on rising costs of higher education.

It is difficult to discuss the issues of postsecondary education without our dear friend and colleague Patsy Mink. There has been no greater believer that a high-quality education should be a basic right of all Americans, and there has been no greater fighter for civil rights and equal rights. Her presence today is dearly missed, but her legacy of opening the doors of opportunity to all Americans will abide, in this Committee, and in the Congress.

Today I was proud to join Mr. Miller and other members of this Committee in introducing a resolution to rename Title IX the "Patsy T. Mink Equal Opportunity in Education Act." Congresswoman Mink was critical to the passage of Title IX, which has opened doors in education and athletics to millions of young women. This resolution is a fitting tribute to her legacy.

The title of today's hearing questions whether the cost of a quality postsecondary education is rising. But in my state of Tennessee, at least, there is little doubt that rising college costs are a fact.

Our state has suffered from large budget shortfalls, and the burden of budget cuts has fallen on students and families. At a time when college has never been more important to economic success, college tuition is becoming increasingly harder to afford for families and students.

This academic year, the University of Tennessee system -- which has 42,000 students -- raised tuition by 7.5% for undergraduates and graduate students, and between 3% and 28% for students in professional programs.

The 180,000-student Tennessee Board of Regents system raised tuition 7.5 percent. Both the UT and Regents raised tuition by 15 percent last year. Tuition and fees at state institutions have climbed by about 50% in the past five years.

Unfortunately, the problems at the state level may be compounded by decreases in federal financial aid. The Administration's proposed budget cuts Pell grants from $4,000 to $3,600 and provides financial aid to 375,000 fewer students. An estimated 6,400 fewer Tennessee students would receive financial aid. The Administration's budget also eliminates the LEAP program, which leverages state scholarship programs. It freezes work-study, Supplemental Educational Opportunity Grants, and Perkins loans. The TRIO and Gear-Up programs, which help put middle and high school students on the path to college, are also frozen. The budget provides only a paltry increase for historically black and Hispanic institutions.

A highly skilled workforce is critical to the economic destiny of Tennessee and our nation. It is also a matter of America's security in a dangerous world. The economy of the twenty-first century will demand skills that can only be gained at the postsecondary level. This is a time when our states and our nation should be investing heavily in higher education, and making college tuition more, not less, affordable.

I look forward to hearing from our witnesses, and also to working with my colleagues to ensure that every student who wants to attend college has that opportunity.

APPENDIX I – WRITTEN STATEMENT SUBMITTED FOR THE RECORD BY REPRESENTATIVE DENNIS J. KUCINICH, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, D.C.

Committee on Education and the Workforce
Hearing on College Costs
October 2, 2002
Rep. Dennis J. Kucinich

Mr. Chairman, thank you for the opportunity to submit this statement.

It has been documented that college tuition is growing faster than inflation. This is a considerable problem. A college education is already an expense that too many Americans cannot afford, and this yearly addition adds a great deal to this difficulty. The education of our citizens is crucial both to our economy and for the well being of our society as a whole. I am very concerned that college costs are rising so quickly and am interested to learn what the Federal government can do to help.

The demand and need for a college education has grown tremendously in recent years. It is understood that the completion of a higher education degree equates to significantly more earning power over one's lifetime in comparison to the completion of only a high school diploma. With this need we must assure that this education remains affordable to the average working family. Unfortunately, today over 60% of full time undergraduate students pay more than $4,000 a year in tuition. This does not include room and board, which often doubles this figure. As a result, more than 400,000 qualified students cannot attend college due to financial barriers.

For most Americans, a public institution is the most affordable solution to attaining higher educational goals. Unfortunately, these schools are quickly pricing many out of this basic need. Statistics show that public schools are leading the way in terms of tuition increases. Four-year public institutions are raising rates at about 2% faster than private and two-year institutions.

There are, of course, explanations for these increases. For instance, in recent years colleges have expanded their curriculums and thus require larger budgets. Microbiology and computer science are emerging fields that use very expensive technology. They are also important components for a basic college education.

Faculty salaries have also been a large factor involved in increasing college costs. Colleges must compete with the private sector to retain faculty, and the private sector has classically paid higher salaries and thus this competition has strained the budget of many higher education institutions. Few would argue against the need to recruit the best and brightest to teach at our nation's colleges. Thus, with the expansion of knowledge, salary increases, and technology, it may not be surprising that increased tuition has followed.

In all, however, we must ask how the Federal government can ensure that all Americans have access to higher education. Although this is not an easy question to answer, it is clear that we must increase the availability of financial aid. Programs like TRIO, GEAR

UP, work-study, Pell grants, and Perkins college loans must be widely available to those Americans who need them, and funding for such initiatives must continue to be increased, commiserate with raising tuition. And of course, while the Federal government has a role in this issue, we must also encourage colleges to constrain tuition as much as possible so as to keep this opportunity affordable all Americans.

Our nation is compelled to promote higher education and keep it affordable. What makes this nation great is opportunity for all. It is therefore our responsibility to allow every citizen the opportunity to achieve a competitive higher education.

Thank you.

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