

**2007 DRAFTING REQUEST**

**Bill**

Received: **09/01/2006**

Received By: **mkunkel**

Wanted: **As time permits**

Identical to LRB:

For: **Ted Kanavas (608) 266-9174**

By/Representing: **Michael Richards**

This file may be shown to any legislator: **NO**

Drafter: **mkunkel**

May Contact:

Addl. Drafters: **pgrant**

Subject: **Higher Education - UW System  
Higher Education - tech. college**

Extra Copies:

Submit via email: **YES**

Requester's email: **Sen.Kanavas@legis.wisconsin.gov**

Carbon copy (CC:) to:

**Pre Topic:**

No specific pre topic given

**Topic:**

Advanced science, technology, engineering and mathmatics partnership initiative between UW-Stout, UW-Eau Claire, and Chippewa Valley Technical College

**Instructions:**

See Attached

**Drafting History:**

<u>Vers.</u>	<u>Drafted</u>	<u>Reviewed</u>	<u>Typed</u>	<u>Proofed</u>	<u>Submitted</u>	<u>Jacketed</u>	<u>Required</u>
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/2	pgrant 02/20/2007	jdyer 02/20/2007	jfrantze 02/13/2007	_____	sbasford 02/13/2007		S&L

Vers.      Drafted      Reviewed      Typed      Proofed      Submitted      Jacketed      Required

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*Jb* *Jb/Pg*  
2/12 ~~END~~ 2/13

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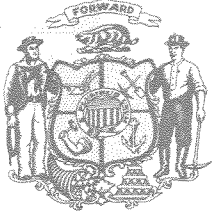
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FE Sent For:

**<END>**  
2207





# TED KANAVAS

STATE SENATOR

To: Legislative Reference Bureau—Drafting Section

From: Michael Richards, Aide to Senator Ted Kanavas

Date: Tuesday, August 29, 2006

Re: NanoSTEM Initiative—Confidential Draft

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The purpose of this memorandum is to request a draft relating to the attached document, which was provided to our office by the University of Wisconsin-Eau Claire. We would like to accommodate all of the requests that they have put forth in their plan, with one exception.

Because we believe that there needs to be a business person within the University to bring the deals in, it is essential that the University of Wisconsin-Eau Claire and Stout appoint one person as the “Business-University Liaison.” This person will work to attract businesses and get them to the right researchers.

Please review the attached draft. If you have any questions, please contact me. If possible, if the drafter could contact me, I would like to know who I am working with on this issue.

*Best,  
Michael Richards*

STATE CAPITOL

P.O. Box 7882 • MADISON, WISCONSIN 53707-7882  
(608) 266-9174 • (800) 863-8883 • FAX: (608) 264-6914

# **The Chippewa Valley NanoSTEM Initiative: Growing Emerging Science, Technology, Engineering, and Mathematics**

## **SYNOPSIS**

**Opportunity:** Develop the Chippewa Valley *NanoSTEM* partnership initiative between UW-Stout, UW-Eau Claire, and CVTC to provide advanced science, technology, engineering, and mathematics (STEM) education, intellectual expertise, and state-of-the-art facilities to students, faculty, and businesses throughout Wisconsin.

**Partnership Description:** The three higher education institutions in the Chippewa Valley will offer collaborative and committed partnering to provide the education and training needed for the region to embrace important emerging technologies in science, technology, engineering, and mathematics (STEM). This partnership will build on the existing strengths of each institution in the traditional science and engineering fields. UW-Eau Claire offers strength in fundamental science education and research in the context of a liberal arts education that fosters development of intellectual and interpersonal skills that are in demand in the technology workforce. UW-Stout offers strength in applied engineering and technology, and in business partnerships supporting innovation. CVTC offers strength in providing a highly skilled workforce with a rapid turnaround from enrollment to workforce infusion.

**Need:** It has been well-documented that the number of U.S. students, especially women and minorities, entering science, technology, and engineering fields has reached an alarmingly low level.

"We have observed a troubling decline in the number of U.S. citizens who are training to become scientists and engineers, whereas the number of jobs requiring science and engineering training continues to grow....If action is not taken now to change these trends, we could reach 2020 and find that the ability of U.S. research and education institutions to regenerate has been damaged and that their preeminence has been lost to other areas of the world." *National Science Board.*

The global economy is driven by advances in science, technology, and engineering. Employers will, by necessity, locate their corporations in regions that have a ready and renewable workforce, well-educated in these fundamental disciplines. Wisconsin, with its outstanding system of higher education, its long history of manufacturing, and its vibrant technology base, is well positioned to provide employers with a viable development environment. The Chippewa Valley is positioned to contribute in significant ways to this endeavor; the individual and complementary strengths of each higher education institution as well as our close physical proximity will allow for strong collaborative efforts.

To realize the full value of the technology and manufacturing opportunities available in the near future, we must build an educational infrastructure that can produce the stream of highly-skilled, technically trained workers they require. The most promising and fastest growing of these employment sectors is in the field of nanoscience and nanotechnology. Nanoscience and nanotechnology involve studying and working with matter on an ultra-small level in disciplines that range from medicine to physics to chemistry to engineering. Nanoscale science, engineering, and technology are interdisciplinary efforts that are based on the ability to measure, manipulate, and

organize matter on the nanoscale – 1 to 100 billionths of a meter. At the nanoscale, physics, chemistry, biology, materials science, and engineering share the same principles and tools. As a result, progress in nanoscience will have worldwide impact, and there will be fundamental scientific advances that will lead to dramatic changes in the ways materials, devices, and systems are understood and created. For example, scientists are looking at whether nanotechnology can be used to improve the delivery of cancer fighting drugs and whether nanoscale carbon can be used to increase the power and speed of computer circuits. Such innovative nanoscale properties and functions will be achieved through the control of matter at the atomic level.

“Nanotechnology has the potential to be the ‘Sputnik’ or the ‘moonwalk’ of our times that will boost enrollment in science and engineering (S&E) careers and could launch a new economic boom in our technology-driven economy.” *Karen Lozano, University of Texas.*

Nanoscale science, technology, and engineering have the potential to attract students into the STEM fields like few other moments in history. The NanoSTEM partnership will educate students and provide support to current and new businesses via:

- new academic programs in nanoscale science, technology, and engineering,
- access to intellectual expertise and state-of-the-art facilities, and
- development of a highly educated and skilled workforce with the fundamental knowledge and skills to support the economic growth of tomorrow.

Because the rate of technological change is increasing so rapidly, there is significant pressure on educational institutions and businesses to respond much more quickly. The proposed collaborative initiative provides a “jump-start” to foster a systemic change that otherwise will occur at a pace much slower than the technological change itself.

**Partnership Benefits-Education:** The NanoSTEM project will provide students, our future science and engineering leaders, with the expertise and skills to foster and sustain the high technology economy of the Chippewa Valley. UW-Eau Claire, UW-Stout, and CVTC are quickly becoming leaders in advancing nanoscale science and engineering, and through the collaborations of this NanoSTEM project, they will advance and promote nanoscale education to students via new academic programs and access to state of the art facilities.

**Partnership Benefits-Regional Businesses:** The NanoSTEM project will provide collaborative opportunities between STEM faculty and businesses and industry in the region. This will provide opportunities for current and new businesses to embrace, incorporate, and benefit from new and profitable technologies by working in concert with the STEM faculty and students and via direct access to state of the art facilities.

**Costs:** Technological developments commonly place great demands on institutions to upgrade facilities and develop intellectual expertise. The proposed partnership and sharing of recognized intellectual expertise and existing and enhanced facilities offers many cost savings opportunities. Each institution needs additional faculty and staff and laboratory equipment to strengthen their aspect of the partnership, but without duplication of effort and facilities. With each partner strengthened, the overall initiative will be better positioned to meet the demands of students and businesses of the Chippewa Valley.

## **The Chippewa Valley NanoSTEM Initiative: Growing Emerging Science, Technology, Engineering, and Mathematics**

*A partnership between CVTC, UW-Eau Claire, and UW-Stout educating students and partnering with businesses in Nanoscale Science, Technology, Engineering, and Mathematics (NanoSTEM)*

### **INTRODUCTION**

The goal is ambitious: to strengthen an education system that is struggling to prepare students for the challenges of the 21<sup>st</sup> century. Driven by the perception that the United States is losing ground to other nations as a world economic power, President George W. Bush says his new American Competitiveness Initiative (ACI) is intended to give today's students "a firm grounding in areas such as math and science," so they have the education and technical skills to ensure that America remains the economic leader of the world. The ACI aims to more than double the federal government's investment in R&D in the physical sciences over the next 10 years, to create more public-private partnerships between universities and businesses, and to enhance the nation's education system by recruiting and training as many as 100,000 teachers to provide more students with college-level instruction in science, technology, engineering, and mathematics (STEM).

The challenge is similar in Wisconsin and in the Chippewa Valley. The future of our economy depends on a strong, competitive workforce and a citizenry well equipped to function in an increasingly complex and interdependent world. As noted by the 1998 Science Committee study *Unlocking Our Future*, "There appears to be a serious incongruity between the perceived utility of a degree in science and engineering by potential students in the U.S. and the present and future need for those with training in our society." This is especially the case in emerging and interdisciplinary areas, such as *nanotechnology*. The initiative proposed here, titled *NanoSTEM*, is a partnership between UW-Eau Claire, UW-Stout, and the Chippewa Valley Technical College (CVTC) that offers a unique combination of strengths with the specific goals of 1) educating more students in advanced STEM disciplines like nanotechnology, 2) providing access to state of the art science and engineering facilities and expertise for both students and regional businesses and industry as we promote and sustain more public-private partnerships in our region, and 3) building a three-pronged workforce skill set of science, engineering, and technology through which to attract and retain the high-end employers of tomorrow.

The focus of this initiative is on advanced education in science, technology, engineering, and mathematics, and our specific emphasis is to leverage the rapidly developing field of nanotechnology science and engineering to attract sufficient numbers of students studying in STEM disciplines. Nanotechnology examines the structure and composition of matter at the atomic and molecular level, and is revolutionizing industrial and manufacturing techniques across the globe and in the Chippewa Valley. The ability to manipulate materials at the atomic level is producing a cascade of innovative developments that is changing industrial methodology forever. This new understanding of materials at the molecular and atomic levels is driving innovations in medicine, consumer electronics, computers, defense, transportation, energy, and environmental science. Examples include the development of hydrogen storage cells, new fuel cells, anti-reflection coatings on contact lenses, self-cleaning glass, new environmental remediation techniques, and enhanced computer memory storage capabilities. The study of nanostructured materials and understanding

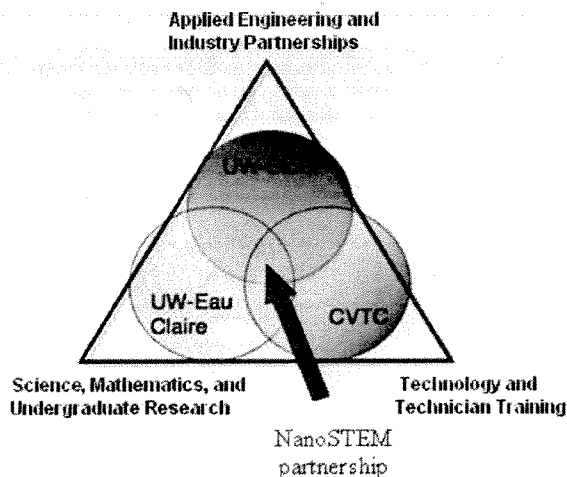
how such materials impart unique characteristics to new devices is driven by the synergistic interplay between science, technology, engineering, and mathematics. Traditional disciplines such as chemistry, physics, materials science, electrical engineering, and computer engineering are all key contributors in this new field of study, and American universities are uniquely positioned to create the public-private partnerships necessary to sustain this collaboration.

This NanoSTEM project provides a framework within which the education and workforce needs of this rapidly evolving technology sector are fulfilled with both existing and developing expertise at UW-Eau Claire, UW-Stout, and the Chippewa Valley Technical College (CVTC). This framework will provide the synergy and people necessary to develop and sustain high technology industries in the upper Midwest.

## THE INITIATIVE

In close collaboration, UW-Eau Claire, UW-Stout, and CVTC will leverage each other's strengths to provide a focused program of STEM education targeted at the nanoscale industry opportunities of tomorrow. We propose capitalizing on existing expertise and to partner on collaborative initiatives in the development and enhancement of degree programs that focus on the triad of nanotechnology, nanoengineering, and nanoscience education. These multidisciplinary, integrated programs will provide a well-educated work force uniquely skilled in the integration of innovative nanoscale science and technology applications into a wide range of industries in the upper Midwest, particularly those along the I94 corridor. The strength of this partnership is the integration of mutually complementary traditional expertise from each institution. UW-Eau Claire has a well-established tradition of providing research experiences for students in the characterization and study of materials at the molecular to nanoscale level grounded in a solid background in science, mathematics, and supporting intellectual and interpersonal experiences; UW-Stout has a long history of providing undergraduate students with in-depth experience in applied engineering and technology; CVTC provides students with technical skills in nanotechnology emphasizing hands-on experience and a short turnaround from program enrollment to workforce participation.

### The Triad of Institutional Strengths



## RATIONALE

Each of the partner institutions is developing or growing new high technology STEM programs and majors; each is developing or has recently developed a materials science and/or nanotechnology program; each is hiring faculty and technical staff specializing in these fields.

- UW-Eau Claire announced the formation of the Materials Science Center in the spring of 2004, a facility that fosters collaboration among faculty in four STEM disciplines (biology, chemistry, geology, and physics), educates students in these STEM disciplines, and supports local industry

with convenient and cost effective access to state of the art equipment and faculty expertise. The university has committed support for an instrument technician who works closely with industrial partners and who helps educate students in basic science research and instrument use. UW-Eau Claire excels in collaborative student/faculty research and has a well-established reputation of producing sought-after graduates with experience in the latest analytical scientific techniques. Educated in the best traditions of the liberal arts and sciences, UW-Eau Claire science graduates have the scientific background, communication, analytical, and critical-thinking skills needed to contribute and adjust to rapidly changing fields like nanoscience, a point reiterated by numerous external advisory board members in discussions on the value of such non-technical skills. The faculty/student research program at UW-Eau Claire builds on a project-based curriculum, and greatly enhances student preparation for graduate school, research careers, and employment in applied science and technology.

- UW-Stout is a recognized leader in quality, technology and innovation. As the first university to receive the Malcolm Baldrige National Quality Award, UW-Stout attracts freshmen and transfer students from all parts of the state. These students are drawn to the campus by cutting-edge academic programs, experienced faculty members, and excellent laboratory facilities. UW-Stout has a long tradition of applied technology programs that emphasize collaboration with local and regional industry partners, including manufacturing engineering, engineering technology, and applied science. Experiential learning is an important element of these programs. UW-Stout possesses resources in the core areas of applied and manufacturing engineering that are necessary to provide the foundation on which to build outstanding electrical, computer, and nanoengineering programs. UW-Stout has also received authorization to renovate and expand its current science building, a \$35 million capital project. The renovated facility is envisioned to provide state-of-the-art classrooms and laboratories for students and faculty to research, study and explore the basic sciences and emerging technologies including biotechnology, nanotechnology, engineering, and computer/information technology.
- CVTC has developed and implemented an associate degree program in nanotechnology and is pursuing the construction of the new NanoRite Center in support of that program. The proposed NanoRite Center would provide a strong nano-fabrication component to the proposed partnership initiative. Governor Doyle has already announced a state commitment of \$500,000 toward the construction of this facility.

Current and new businesses will need access to instrumentation and highly educated workers trained in STEM disciplines including nanoscience and engineering. The proposed collaborative initiative will permit each institution to capitalize on its respective strengths, leverage new capabilities through a collaborative program of shared instrumentation, and avoid overlap and duplication of programs and facilities. Integrated facilities, remotely operable instruments, educational programs, and collaborations between UW-Eau Claire, UW-Stout, and CVTC will provide an easy and cost efficient mechanism for students to complete their education and training in nanoscience, engineering, and technology, and for business and industry partnerships to flourish as access to specialized instrumentation and faculty expertise is made convenient.

## **BENEFITS**

The primary mission of the collaborative program is threefold: 1) educating more students in advanced STEM disciplines like nanotechnology, 2) providing access to state of the art science and engineering facilities, and expertise for both students and regional businesses and industry as we promote and sustain more public-private partnerships in our region, and 3) building a three-pronged workforce skill set of science, engineering, and technology through which to attract and retain the high-end employers of the Chippewa Valley.

The program will provide direct, tangible benefits to existing companies throughout the region by assisting in both materials characterization and fabrication. The new program will also provide direct evidence of a strong commitment of the State of Wisconsin to economic development and industrial partnerships.

### ***Support for Regional Industries and Economic Development***

The three partner institutions have a strong track record of providing benefits to regional businesses and industries, and based on accelerating nanoscience and engineering needs in the Chippewa Valley, additional expertise and state-of-the-art facilities are increasingly in demand by businesses. This NanoSTEM initiative will promote additional and timely economic development by providing a regional resource to industries throughout the area. Access to the expertise and instrumentation will allow current industries to address nanoscience and engineering concerns such as materials characterization, fabrication, failure analysis, corrosion analysis, coatings, and reverse engineering. The partnership will be attractive to new companies seeking ready access to state-of-the-art expertise and instrumentation specific to materials characterization and nanoscience. As a regional center, NanoSTEM will provide these capabilities to the high technology clusters in the I94, Western Wisconsin, and SuperiorLife Technology Zones. This collaboration will enhance existing industrial capabilities in materials characterization and nanotechnology and help develop new ones by providing a logical center and natural "contact point" for industry to connect to, and draw upon, the available resources and expertise.

### ***Benefits to education missions***

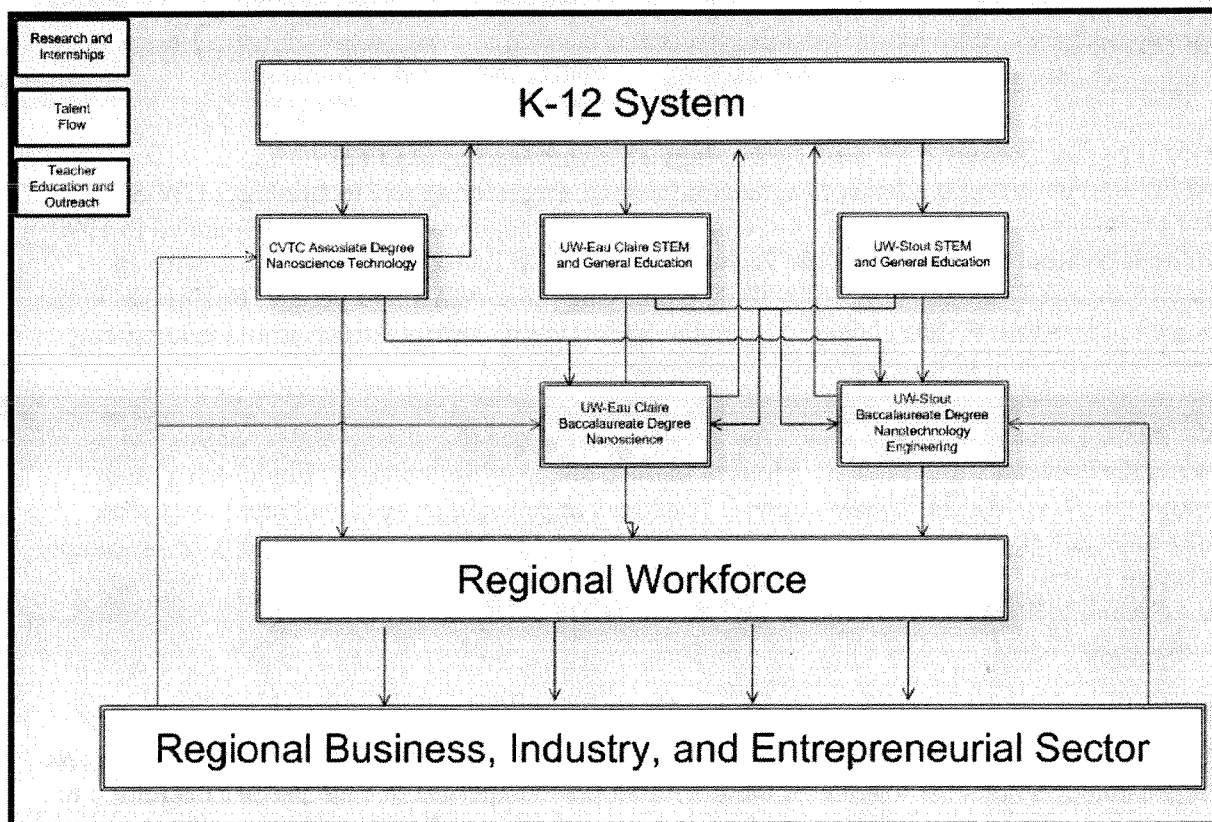
Emerging nanoscale technologies in science and engineering require curricular changes and improvements. The rapidly expanding field of nanoscale investigation requires highly trained and specialized personnel well-versed in the fundamental science and engineering that drives them. For this reason, the proposed partnership will provide a high caliber education to students destined to become the next generation of high technology scientists, engineers, and technicians. The collaboration will also facilitate the flow of effective curricular ideas and practices and provide a means by which common use nanoscale equipment can be effectively shared and not duplicated unnecessarily. The incorporation of state-of-the-art tools and methods into the bachelor and associate degree curricula will provide students with the best possible experience and training in cutting edge methods. The opportunity for students to engage in work that solves real-world problems in business and industry will better prepare them to enter the workforce.

The NanoSTEM project will also reach out to K-12 schools and teachers to provide curricular materials and education relevant to the nanoscale endeavor as well as to identify students who may be interested in a career in the nanoscale industry. In addition, outreach programs will provide public exposure to nanoscience and engineering. For example, UW-Stout's recently implemented Science Education major within the Applied Science program is designed to train our future science teachers and to introduce them to the importance of the emerging fields of technology and the scientific applications in society. UW-Stout is also the state host for the annual high school Science

Olympiad competition, the Wisconsin Technology Education Conference and the STEPS (Science, Technology and Engineering Preview) Program. These outreach activities enable close interactions with middle schools, high schools and thousands of the brightest young students, scientists, teachers and engineers in Wisconsin.

## COLLABORATIVE STRUCTURE

Successful scientific and educational collaborations, particularly cross-disciplinary and inter-institutional programs, rely on close ties and interactions among the participating faculty, students, and business partners. The proposed collaborative program is shown in the figure below, and all three partner institutions are committed to both the sharing of, and access to, facilities and instrumentation, as well as to the provision of a barrier-free collaborative experience for students to selectively pursue either an Associates Degree or a Baccalaureate degree via transfer between the educational programs of the partner institutions.



## INSTITUTION-SPECIFIC STRENGTHS

### *The UW-Eau Claire Materials Science Center*

The UW-Eau Claire Materials Science Center provides a unique hands-on educational experience for undergraduate students in nanoscience and technology. Students can pursue formal courses and curricula at the same time that they engage in student/faculty research projects with state of the art research instrumentation. The Materials Science Center contains highly specialized scientific equipment rarely found outside of major Doctoral I institutions. As such, it is extremely rare to find



faculty and students working on such state of the art equipment *at the undergraduate level*. The faculty/student research projects performed in the Materials Science Center provide important advances in cutting edge research, facilitate collaborations between science faculty and local business partners, and foster and sustain interactions between UW-Eau Claire and high technology industries throughout the state of Wisconsin. The Center's special instrument holdings are crucial for enabling these student/faculty collaborative research efforts, and they provide an important shared resource that strengthens the mutually beneficial nanotechnology and STEM education goals of UW-Eau Claire, UW-Stout, and CVTC.

Faculty in the Center routinely collaborate with local industry, working on projects that improve existing products and technology and developing new understanding that leads to new business opportunities. One of the goals of this NanoSTEM project is to expand this collaboration with a clear focus on sustaining quick, straightforward access to and sharing of expertise. We are interested in helping local industry solve problems, both small and large, and in taking advantage of that collaboration to create an environment for training a new generation of scientists and engineers. Increasing the scope of these efforts is presently limited by the time that faculty have to devote to these collaborations, and the need for additional materials preparation and characterization tools and the appropriate technical staff to sustain them.

#### ***UW-Stout's Technology Park and Technology Transfer Institute (STTI)***

In addition to its strong academic programs in science, engineering and technology, UW-Stout also offers extensive technology outreach to area industries through several venues. Founded in 1990 near the UW-Stout campus, the Stout Technology Park now includes 48 businesses, with an estimated assessed valuation of \$67 million, employing more than 1,300 people. Businesses in the park gain access to UW-Stout's expertise in the latest manufacturing strategies and leading-edge technologies that will help solve problems and increase profits.

UW-Stout's Technology Transfer Institute (STTI) is designed to promote technology transfer between the university and industry. Housed in the College of Technology, Engineering, and Management (CTEM), STTI draws upon UW-Stout's impressive array of technical resources, faculty and staff expertise, and well-equipped and diversified laboratories, including an on campus incubation center. Technology transfer between industry and universities allows the pooling of the best technology, and enables companies to take on projects beyond their individual risk threshold or resource capability.

STTI's resources are made available through several centers. The Northwest Wisconsin Manufacturing Outreach Center (NWMOC), a direct partnership between UW-Stout and five area technical colleges that draws upon the unique mission and expertise of each partner institution to deliver an integrated manufacturing modernization service to small and medium sized manufacturers in Northwest Wisconsin. The Center for Innovation and Development provides a broad range of services to manufacturers, inventors, and entrepreneurs including feasibility assessment, product engineering and design, prototype development, product evaluation, and patent advice. This outreach is intended to promote the entrepreneurial commercialization of innovative products and technologies.

#### **INSTITUTION-SPECIFIC NEEDS AT UW-EAU CLAIRE**

Supporting and enhancing nanoscience initiatives at the UW-Eau Claire will require new academic programs, personnel, and equipment as described below.

### ***New Personnel***

UW-Eau Claire seeks twelve (12) new faculty and staff to support and enhance existing efforts in nanoscience education and training of students. New faculty will increase the available expertise in applied scientific disciplines, permit expansion of the current student/faculty collaborative research program, and strengthen collaboration with industry. The expanded expertise will allow nanoscience faculty to focus on new, cross-disciplinary avenues of research. The broader range of expertise will facilitate a larger number of industrial collaborations, as well as significantly enhancing research opportunities for students. Some staff will serve primarily as technicians who will train students, analyze samples on behalf of regional business partners, and maintain instruments. These technical staff will collaborate with faculty on technique development and instrument modification, carry out sample analysis for industrial collaborators, and participate in research with undergraduates thus providing economic growth in the region.

In addition, these new faculty will enable UW-Eau Claire to implement a capstone internship program for the Associate Degree level Nanoscience Technology program offered by the Chippewa Valley Technical College (CVTC). The existing four-semester degree is based on a collaborative agreement between the CVTC and the University of Minnesota through which students take the first three semesters of the program at CVTC and then transfer to the University of Minnesota for the final capstone semester. Unfortunately, this model adds to the “brain drain” in Wisconsin as we are systematically encouraging our students to move to Minnesota. This NanoSTEM project will enable CVTC students to complete the final semester of their program at the UW–Eau Claire.

### ***Teacher Education and Outreach***

Outreach to K-12 students and teachers is crucial to encourage students to pursue advanced education in STEM disciplines like nanoscience and engineering. Through programs like the federal National Nanotechnology Initiative (NNI), faculty and staff will be able to leverage innovative outreach materials designed to capture the imagination and interest of K-12 students. In addition, as the public awareness of nanotechnology increases, there will be an increased demand for seminars and research experiences designed to educate existing and future K-12 teachers on the power and potential of this pervasive technology. UW–Eau Claire’s long standing tradition of outstanding teacher education uniquely positions the Chippewa Valley region with the availability of such high quality teacher education options. The personnel requested in this proposal will directly influence the ability of UW–Eau Claire faculty and staff to engage in this important outreach activity.

### ***UW-Eau Claire Proposed Equipment***

UW-Eau Claire has an excellent record of operating and maintaining high-end research instruments, especially in the areas of science and technology. The array of world-class scientific instrumentation in Phillips Science Hall rivals that of many Doctoral I institutions, and eclipses that of other regional comprehensive universities in the United States. Technological advances in nanoscience require frequent upgrades and modification of existing instrumentation. UW-Eau Claire therefore proposes funding to acquire critical new instrumentation, procure sample preparation equipment, and to support instrument and laboratory maintenance and rotation (see Table 1).

<b>Equipment</b>	<b>Need</b>
Scanning Electron Microscope	A "cold" field-emission source scope that determines surface structure, elemental analysis of the sample, is remotely operable, and is easy for students to use.
Atomic Force Microscopes	A versatile microscope used to image "hard" samples and "soft" samples like biological materials and plastics.
Laser Ablation for Mass Spectrometer	A laser ablation unit that permits solid state materials characterization, which has widespread applications in materials characterization and quality control
Polymer Characterization Instruments	Instruments that measure temperatures at which plastics undergo physical change and at which they decompose.
Materials Simulation Software	Modeling software that helps researchers understand the unique properties that are often observed in nanoscale structures.
Film Growth Equipment	Equipment that deposits metal, semiconductor, and insulator films which are a central aspect of nanotechnology research.
Surface Cleaning Facilities	Tools used to prepare surfaces to be of a known structure and composition.
Surface Science Instruments	Instruments that allow samples prepared in different chambers to be compared directly, without interference from air or light sources.
Leak Detector	Equipment used to find the location of any leak in the nanotechnology equipment, which must operate under a vacuum.

**Table 1**

## **INSTITUTION-SPECIFIC NEEDS AT UW-STOUT**

Supporting and enhancing nanoscale science and engineering initiatives at the UW-Stout will require new academic programs, personnel, and equipment as described below.

### ***New Personnel***

UW-Stout seeks nine (9) new faculty and staff to support and enhance existing efforts in nanoscale science and engineering education and training. New faculty will support new programs in biotechnology, nanotechnology, and associated engineering fields. These faculty would complement and support current expertise in the field, permit expansion of the engineering program array, and allow current faculty to work more closely with industry. New technical staff will train students, analyze various samples, and maintain instruments. These technical personnel would be a key component of providing a timely response for regional businesses. In addition, the technicians will collaborate with faculty on technique development and instrument modification, and will participate in collaborative research with undergraduates and other scholarly activities. New faculty will enable an expansion of UW-Stout's engineering program array to include the applied engineering fields that directly support nanoengineering and the existing engineering needs of the Chippewa Valley, including electrical and computer engineering programs that enhance nanoscale engineering needs. Furthermore, UW-Stout is collaborating with Northeast Technical College in Green Bay to offer a BS degree completion program in Engineering Technology, and new faculty will further support program expansion into that region. A snapshot of present regional industry needs indicates that further development of engineering programs in polymer and computer and electrical engineering areas are relevant and in demand to drive the implementation of advanced emerging technologies. All new personnel will concentrate on interdisciplinary applied research and development, teaching, and collaborative projects with regional businesses. UW-Stout has a long history of leveraging technology transfer to provide an immediate impact on regional businesses' ability to embrace emerging technologies.

***UW-Stout Proposed Equipment***

Active-learning via laboratory activities is at the core of UW-Stout's institutional mission. The science and engineering departments offer an array of scientific instrumentation and engineering and processing equipment. The following list proposes additional equipment and instrumentation needed for advanced study, characterization, fabrication and processing in nanoscale engineering (see Table 2).

Equipment	Need
Oligonucleotide synthesizer	An instrument used to synthesize genes, constructs, PCR primers, sequencing primers, and anti-sense reagents for high-throughput analysis.
DNA/RNA Sequencer	An instrument used to sequence DNA of extracted or synthesized DNA/RNA.
Real-Time PCR System	An instrument used to quantify the expression of specific gene, and to confirm any modifications in gene expression by oligonucleotides.
Confocal Microscopy	Accessories to a fluorescent scope allowing visualization of the effects of modifying processes by nanotechnology on living cells and organisms
Process capable AFM	An instrument used to develop techniques to advance the processing capability of nano-devices and nano-materials.
Scanning Electron Microscope	Accessories to visualize nano-biological materials and devices.
Chemical Vapor Deposition	Equipment used to process nano-layers of materials.
Photo and Electron-Lithography	Equipment used to process nanoscale devices and materials.
Clean Room	An environment used to house sensitive nanotechnology characterization and fabrication equipment.

**Table 2**

**BASE BUDGET DETAILS**

<b>UW-EAU CLAIRE FISCAL SUMMARY</b>							
<b>SOURCE OF FUNDS</b>			<b>EXPENDITURE ITEMS</b>	<b>2007-08</b>	<b>(FTE)</b>	<b>(Increase Over 2007-08)</b>	
		<b>%</b>				<b>2008-09</b>	<b>(FTE)</b>
GPR	\$ 2,645,750	100	Unclassified Salaries	\$ 250,000	4	\$ 530,000	8
SEG			Graduate Assistants				
PRO			Classified Salaries				
PRF			LTE Salaries				
			Student Help				
TOTAL	\$ 2,645,750	100	Fringe Benefits	\$106,250		\$225,250	
			Supplies & Services	\$75,000		50,000	
			Permanent Property	\$300,000		\$378,000	
			Aids to Individuals & Organizations				
			Unallotted Reserve				
<b>BUDGET CHANGE CATEGORY</b>							
	Cost-to-Continue		<b>ANNUAL TOTALS</b>	\$731,250	4	\$ 1,183,250	8
	Workload Adjustment						
x	Program Modifications		<b>BIENNIAL TOTAL</b>	\$2,645,750			
	One-time Financing		<b>POSITION TOTAL BY 2008-09</b>		12		

**UW-STOUT FISCAL SUMMARY**

SOURCE OF FUNDS			EXPENDITURE ITEMS	2007-08	(FTE)	(Increase Over 2007-08)	
	\$	%				2008-09	(FTE)
GPR	\$ 2,117,625	100	Unclassified Salaries	\$ 425,000	6	\$ 215,000	3
SEG			Graduate Assistants				
PRO			Classified Salaries				
PRF			LTE Salaries				
TOTAL	\$ 2,117,625	100	Student Help				
			Fringe Benefits	\$180,625		\$91,375	
			Supplies & Services	\$87,500			
			Permanent Property	\$212,500			
			Aids to Individuals & Organizations				
			Unallotted Reserve				
<b>BUDGET CHANGE CATEGORY</b>							
			ANNUAL TOTALS	\$905,625	6	\$ 306,375	3
			BIENNIAL TOTAL	\$2,117,625			
			POSITION TOTAL BY 2008-09	9			

**Total Base Budget Request: \$4,763,375**



State of Wisconsin  
2007 - 2008 LEGISLATURE

LRB-0117/1

MDK: :....

jd

soon

D-NOTE

2007 BILL

LPS -  
check  
auto refs

GEN

- 1 AN ACT ...; relating to: increasing appropriations for nanoscience positions and
- 2 equipment at the University of Wisconsin-Eau Claire and the University of
- 3 Wisconsin-Stout.

*Analysis by the Legislative Reference Bureau*

This bill increases appropriations to the Board of Regents (board) of the University of Wisconsin (UW) System to fund positions and equipment for nanoscience at the UW-Eau Claire and the UW-Stout. Specifically, the bill does the following:

LPS-  
subsub  
heads

→ **UW-Eau Claire** The bill increases appropriations by \$731,250 in fiscal year 2007-08 and by \$1,183,250 in fiscal year 2008-09 for the purpose of increasing the number of FTE positions for faculty and staff at the UW-Eau Claire by 4.0 in fiscal year 2007-08 and by 8.0 in fiscal year 2008-09. The board must ensure that the positions support nanoscience education and training at the UW-Eau Claire. In addition, the bill increases appropriations by \$365,625 in fiscal year 2007-08 and by \$365,625 in fiscal year 2008-09 to acquire new nanoscience instrumentation and sample preparation equipment, and to support instrumentation and laboratory maintenance and rotation, at the UW-Eau Claire.

→ **UW-Stout** The bill increases appropriations by \$905,625 in fiscal year 2007-08 and by \$306,375 in fiscal year 2008-09 for the purpose of increasing the number of FTE positions for faculty and staff at the UW-Stout by 6.0 in fiscal year 2007-08 and by 3.0 in fiscal year 2008-09. The board must ensure that the positions support nanoscale science and engineering education and training at the UW-Stout.

**BILL**

In addition, the bill increases appropriations by \$452,813 in fiscal year 2007-08 and by \$452,812 in fiscal year 2008-09 to acquire equipment and instrumentation needed for advanced study, characterization, fabrication, and processing in nanoscale engineering at the UW-Stout.

For further information see the *state* fiscal estimate, which will be printed as an appendix to this bill.

*The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:*

INSERT 2-1 (moved from next page)  
Fiscal

1 SECTION 1. ~~Appropriation~~ changes.

2 (1) UNIVERSITY OF WISCONSIN-EAU CLAIRE; POSITIONS. In the schedule under  
3 section 20.005 (3) of the statutes for the appropriation to the board of regents of the  
4 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
5 affected by the acts of 2007, the dollar amount is increased by \$731,250 for fiscal year  
6 2007-08 to increase the authorized FTE positions by 4.0 GPR positions for faculty  
7 and staff at the University of Wisconsin-Eau Claire, and the dollar amount is  
8 increased by \$1,183,250 for fiscal year 2008-09 to increase the authorized FTE  
9 positions by 8.0 GPR positions for faculty and staff at the University of  
10 Wisconsin-Eau Claire.

11 (2) UNIVERSITY OF WISCONSIN-EAU CLAIRE; EQUIPMENT. In the schedule under  
12 section 20.005 (3) of the statutes for the appropriation to the board of regents of the  
13 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
14 affected by the acts of 2007, the dollar amount is increased by \$365,625 for fiscal year  
15 2007-08 and the dollar amount is increased by \$365,625 for fiscal year 2008-09 to  
16 acquire new nanoscience instrumentation and sample preparation equipment, and  
17 to support instrumentation and laboratory maintenance and rotation, at the  
18 University of Wisconsin-Eau Claire.

**BILL**

1 (3) UNIVERSITY OF WISCONSIN-STOUT; POSITIONS. In the schedule under section  
 2 20.005 (3) of the statutes for the appropriation to the board of regents of the  
 3 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
 4 affected by the acts of 2007, the dollar amount is increased by \$905,625 for fiscal year  
 5 2007-08 to increase the authorized FTE positions by 6.0 GPR positions for faculty  
 6 and staff at the University of Wisconsin-Stout, and the dollar amount is increased  
 7 by \$306,375 for fiscal year 2008-09 to increase the authorized FTE positions by  
 8 3.0 GPR positions for faculty and staff at the University of Wisconsin-Stout.

9 (4) UNIVERSITY OF WISCONSIN-STOUT; EQUIPMENT. In the schedule under section  
 10 20.005 (3) of the statutes for the appropriation to the board of regents of the  
 11 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
 12 affected by the acts of 2007, the dollar amount is increased by \$452,813 for fiscal year  
 13 2007-08 and the dollar amount is increased by \$452,812 for fiscal year 2008-09 to  
 14 acquire equipment and instrumentation needed for advanced study,  
 15 characterization, fabrication, and processing in nanoscale engineering at the  
 16 University of Wisconsin-Stout.

INSERT  
 2-1 →  
 (move to previous page)

**SECTION 2. Nonstatutory provisions.**  
 (1) POSITIONS. The board of regents of the University of Wisconsin System shall ensure that the positions authorized under section 1 (1) and (3) of this act support nanoscience education and training at the University of Wisconsin-Eau Claire and nanoscale science and engineering education and training at the University of Wisconsin-Stout.

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23

(END)

d-note  
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DRAFTER'S NOTE  
FROM THE  
LEGISLATIVE REFERENCE BUREAU

LRB-0117/1dn

MDK: A:...

date

Jid

Sen. Kanavas:

Please review this bill to make sure that it achieves your intent. In particular, please note the following:

1. I assume that you don't need any statutory language authorizing or requiring ~~the~~<sup>e</sup> UW-Eau Claire and ~~the~~<sup>e</sup> UW-Stout to engage in the activities in the "NanoSTEM" initiative. Is that correct?

2. Because s. 20.285 (1) (a) <sup>✓</sup> is an annual appropriation, the increases for each fiscal year that are made in this bill must be expended in those fiscal years and any amounts that are not expended in the fiscal year will lapse to the general fund. Is that okay?

3. Note that s. 16.47 (2) <sup>✓</sup>, stats., provides that, before passage of the executive budget bill, neither house may pass a bill that increases the cost of state government by more than \$10,000 annually unless the governor, the Joint Committee on Finance <sup>✓</sup>, or, in some cases, the committee on organization of either house recommends passage of the bill as an emergency appropriation bill. (Of course, s. 16.47 (2), stats., establishes a rule of legislative procedure, and thus the legislature determines the extent to which it is enforced.) <sup>\*</sup>

Mark D. Kunkel  
Senior Legislative Attorney  
Phone: (608) 266-0131  
E-mail: mark.kunkel@legis.wisconsin.gov

**DRAFTER'S NOTE**  
**FROM THE**  
**LEGISLATIVE REFERENCE BUREAU**

LRB-0117/1dn  
MDK:jld:pg

December 29, 2006

Sen. Kanavas:

Please review this bill to make sure that it achieves your intent. In particular, please note the following:

1. I assume that you don't need any statutory language authorizing or requiring UW-Eau Claire and UW-Stout to engage in the activities in the "NanoSTEM" initiative. Is that correct?
2. Because s. 20.285 (1) (a) is an annual appropriation, the increases for each fiscal year that are made in this bill must be expended in those fiscal years and any amounts that are not expended in the fiscal year will lapse to the general fund. Is that okay?
3. Note that s. 16.47 (2), stats., provides that, before passage of the executive budget bill, neither house may pass a bill that increases the cost of state government by more than \$10,000 annually unless the governor, the Joint Committee on Finance, or, in some cases, the committee on organization of either house recommends passage of the bill as an emergency appropriation bill. (Of course, s. 16.47 (2), stats., establishes a rule of legislative procedure, and thus the legislature determines the extent to which it is enforced.)

Mark D. Kunkel  
Senior Legislative Attorney  
Phone: (608) 266-0131  
E-mail: mark.kunkel@legis.wisconsin.gov

## Grant, Peter

---

**From:** Kunkel, Mark  
**Sent:** Tuesday, January 23, 2007 9:46 AM  
**To:** Grant, Peter  
**Subject:** FW: Revision to LRB 0117

Can you revise this bill to do what's asked below? Or should I? (It's involves tech colleges)

---

**From:** Richards, Mike  
**Sent:** Friday, January 19, 2007 11:37 AM  
**To:** Kunkel, Mark  
**Subject:** Revision to LRB 0117

Mark,

We would like to add changes to LRB 0117:

For the Chippewa Valley Technical College we would like to have an expenditure of \$1,113,400.00 for the purposes of paying for a NanoRite Manager, Clean Room and Equipment and Technicians, Nanotechnology Faculty, and equipment for usage in nanotechnology research and education. No money for construction.

Thanks

*Michael D. Richards*

*Michael D. Richards*

*Office of State Senator Ted Kanavas*

*State Capitol, Room 106 South*

*Madison, WI 53707-7882*

*608-266-9174*

**NanoRite: Center of Innovation  
Proposal as Requested by Senator Kanavas  
By Chippewa Valley Technical College**

**Investment (Project) Area**

The project area includes all of the Chippewa Valley Technical College's (CVTC) service territory. This includes all, or parts of, Buffalo, Chippewa, Clark, Dunn, Eau Claire, Jackson, Pepin, Pierce, St. Croix, Taylor, and Trempealeau Counties in western Wisconsin.

Although the physical location will be the City of Eau Claire, technology businesses throughout western Wisconsin will be encouraged to locate in the Center for Innovation. Upon graduation from the Center, businesses will be strongly encouraged to locate in western Wisconsin. CVTC will work with communities in the region to find suitable space for these graduates.

The CVTC service territory includes several areas within the west central Wisconsin area that are EDA eligible. These areas are: Clark, Dunn, and Pepin Counties and numerous sub-areas (census tracts). These areas are considered eligible by EDA criteria at a 30/70 matching grant rate.

Also, paramount is the close proximity of the Minneapolis/St Paul Metropolitan Market which is a national leader in the Medical Device Industry and Nanotechnology applications.

**Investment (Project) Description**

The Chippewa Valley of western Wisconsin is ideally situated, geographically, to play a major role in the projected growth of advanced manufacturing and nanotechnology. Nationwide, the impact of these emerging fields is expected to be huge. The United States government estimates that by 2015 nanotechnology products and services will be the basis of \$1 trillion in new products and services.

The Chippewa Valley is located in the western portion of the "I-Q Corridor", an area running from Chicago, through Milwaukee, Madison, and on to the Twin Cities. The I-Q Corridor is home to as many people, as much capital, as many technology jobs, and as many technology companies as California's technology zone, reaching from San Diego through the San Francisco Bay area. Great opportunity exists for the development of cutting-edge technologies, new industries, and a trained workforce which will allow the region to realize its potential.

Within the Chippewa Valley, Chippewa Valley Technical College (CVTC) is ideally positioned to lead this effort. Committed to meeting the dynamic and diverse workforce needs of the region, the expected scope of CVTC's involvement in these emerging industries is broad. To begin preparing a workforce to facilitate these new technologies, CVTC launched a Nanoscience Technology Associate Degree program in January 2005. With curriculum shared by Minnesota's Dakota County Technical College, the program is delivered in partnership with the University of Minnesota, which provides coursework to students in their final semester. In addition, CVTC is committed to providing continuing education as technologies advance, collaborating with industry on applied research projects, and providing labs and equipment to support innovation.

Other Nanoscience projects are bringing CVTC together with regional post-secondary partners. Faculty, administrators, and other staff from CVTC, University of Wisconsin-Eau Claire, and University of Wisconsin-Stout have been meeting regularly over the past nine months to develop collaborative initiatives related to nanotechnology. Ongoing projects include planning equipment purchases to avoid duplication across the three institutions, developing dual credit courses to fulfill both university and technical college requirements, and other efforts to best meet current and projected employment needs while providing excellent service and convenience to students. In addition, as the first college in the Wisconsin Technical College System to develop a Nanoscience Technology Program, CVTC has been involved with a statewide effort involving other technical college campuses by sharing resources, curriculum and plans related to training Nanoscience technicians.

Central to the development of the Chippewa Valley effort, a regional incubation center, NanoRite, is being constructed. In June 2004, the CVTC hired Jack Uldrich, President, NanoVeritas Group, as a consultant to conduct a feasibility study for a nanotechnology incubator for the Chippewa Valley. The study concluded a nanotechnology incubator would be too narrow focused and a more diverse technology incubator would be more successful. Consequently, the NanoRite Center for Innovation will be developed as a mixed-use advanced technology incubator including technologies such as nanotechnology and microfabrication. NanoRite will provide workspace, infrastructure, access to high end sophisticated equipment used in the Class 100 cleanroom and a supportive environment to entrepreneurs engaged in start-up and early-stage companies. Successful businesses will graduate from NanoRite when they are financially viable and can operate independently.

To best allow access to laboratories, technical resources, equipment, and instructional staff, NanoRite is being attached to CVTC's Gateway Campus, which serves as the college's Manufacturing and Technology Center. The 37,000 square-foot addition will also include classrooms and lab space totaling 8,000 square feet, a clean room, and office space to house the partners. Other common space will include a conference room and access to IT and communication support. A wide array of auxiliary services will also be housed in NanoRite, including the following: Wisconsin Entrepreneur Network Regional Office, Wisconsin Department of Commerce Regional International Trade Office, Forward Wisconsin Western Regional Office, Momentum Chippewa

Valley, Northwest Wisconsin Manufacturing Outreach Center Marketing, Chippewa Valley Angel Network, SCORE and Small Business Development Center.

The construction of NanoRite is planned in three phases:

**Phase I** (already completed; no funds are requested): Class 100 clean room (1000 square feet), chemistry lab (1200 square feet), microfabrication center (1000 square feet).

**Phase II:**

1. construction of at least 37,000 square feet of office space, incubation space, training rooms, conference rooms, and staff work room
2. acquire equipment, hire manager, technicians and faculty(request funding)

**Phase III:** future development of expanded incubation space, of at least 40,000 square feet, depending on market conditions.

## **Economic Development Need**

Over the past 18-24 months, western Wisconsin has been beset with numerous plant closings. At least six companies have closed plants in the area, including: Celestica, Rockwell Automation, American Girl, Intek Plastics, Mason Shoe, and MRM Elgin. These closings resulted in over 650 people losing their job. Several of these companies were closed due to global competition and/or relocating off-shore. This has caused the economic development network to respond by initiating strategies that include innovation and entrepreneurship.

The CVTC, in partnership with private business, UW-Eau Claire, UW-Stout, UW-River Falls, and local government, has undertaken the development of a Center for Innovation to foster innovation and entrepreneurship. This Center will nurture businesses which will contribute to the development of a growing technology sector within western Wisconsin. These technology businesses will be the job generators of the future and employ locally trained technology workers. This will create a more diversified and stable economy which is not as susceptible to foreign competition and off-shore relocation.

Another problem this Center will assist in addressing is the chronic low per capita wage of the area. The Center will "incubate" technology businesses which, upon graduation, can locate in western Wisconsin and create jobs. These jobs will require technical skills and offer a higher wage than the semi-skilled jobs. This problem of low wages has been a persistent one in western Wisconsin with most counties below the state and federal per capita wage levels. A strategy which includes increasing the per capita

wage level of the region has been supported by the West Central Region and this project is consistent with it.

Substantial planning has gone into the development of the Innovation Center. CVTC commissioned a study by the NanoVeritas Group to determine the feasibility of a nanotechnology incubator for the region. The study determined that a nanotechnology incubator would be too single focused and not feasible, but a more inclusive technology incubator would be. Shortly thereafter, Momentum Chippewa Valley received State of Wisconsin Department of Commerce funds to prepare a business plan for a technology incubator. The plan recommended the CVTC Gateway Campus as the site of a multi-faceted technology incubator. These two studies have guided CVTC in the planning, design and construction of the NanoRite Center for Innovation.

The construction of the NanoRite Center for Innovation is consistent with the West Central Wisconsin Regional Planning Commission's Comprehensive Economic Development Strategy (CEDS). One of the goals in the CEDS is to diversify the economy. This project will assist in diversifying the economy by focusing on technology and entrepreneurship. Technology related businesses, including nanotechnology, are keys to the west central Wisconsin economy of the future. There is a great opportunity for west central Wisconsin to continue the momentum established over the past few years to create a technology segment of the economy. Recent actions such as: designation as a Technology Development Zone; creating two angel investment groups; establishing a technology network of partnerships between education, business, and government; and establishing a Wisconsin Entrepreneur's Network (WEN) office in the region, are indicative of the focus on technology in the region. The construction of a Center for Innovation is a critical element of this technology strategy.

Another aspect of the Center for Innovation that relates to the goals of the CEDS is to increase the per capita income of the region. The west central region of Wisconsin has historically had per capita incomes below the state and national averages. While some counties have seen their per capita incomes increase recently, the majority of counties are still considerably below the state and national averages. Creating new technology businesses will help in establishing well paying jobs for the region's residents.

### **Investment (Project) Impact**

#### **A. *Market-based and results driven.***

The Chippewa Valley Technical College's NanoRite Center for Innovation is a pro-active effort to lead the region into the technology market. The establishment of a technology incubator with appropriate entrepreneurial services will provide a location for technology entrepreneurs to develop their businesses and, eventually, locate throughout the region. This partnership with the private sector (entrepreneurs) will foster market driven results which will create high paying

jobs. The results of the investment in the NanoRite Center for Innovation will be measured by the number of businesses create along with the associated technology jobs.

Significant planning and analysis has gone into the establishment of the NanoRite Center for Innovation and throughout the planning, the emphasis has been on business and employment development. These are the "bottom line" results that the Center will strive to attain. The CVTC and its partners have worked hard to insure the incubator will be successful through sound planning.

The number of jobs created by the investment in the NanoRite Center for Innovation is difficult to determine with total accuracy, but over the long term, the Center could be responsible for numerous new businesses and high paying jobs.

Initially, the tenants in the NanoRite Center for Innovation will not employ many people. Generally, tenants will employ one to three people during the research, development, and prototype phase. Given this, the employment in the Center, at any given time, could be from five to fifteen people. The real impact of the facility occurs after graduation from the facility.

The impact of the Center will be felt as generations of graduates relocate in the region and create jobs. For example, the Chippewa Valley Innovation Center, a non-technology incubator, has been the initial home to companies that relocated to the Chippewa Valley and created over 650 jobs in the last 20 years. It is conceivable that given the technology emphasis that NanoRite has, this figure could be doubled or tripled if a product and or process is extremely successful.

*B. Advance productivity, innovation, and entrepreneurship.*

The primary mission of the NanoRite Center for Innovation will be to increase innovation, foster entrepreneurship, and advance productivity. It will be the focus of the Center to house start-up technology companies. Innovation will be the hallmark of the businesses that locate in the Center. The Center will be equipped with state-of-the-art equipment to allow entrepreneurs that best environment to develop advanced products in the following industries:

- Advanced materials
- Semiconductors
- Energy/environment
- Manufacturing and engineering
- Nanoelectronics
- Biotech/pharma

A cadre of service professional will be available (some of them on-site) to help the entrepreneurs with issues such as: funding, legal, financial, production, marketing, and others. These services will allow the business more time to focus



on the product/process the company can commercialize the product and hire employees. The objective of the Center is to be a place for technology businesses to develop their product/process in an appropriate work environment. By providing this environment, entrepreneurs will have a far greater opportunity for success and contribute to the innovative changes in the regional economy.

*C. Economic changes, and diversify the local and regional economy.*

The NanoRite Center for Innovation project is an investment in the future economy of west central Wisconsin. It is a project which fits into the regional economic strategy of increasing the technology base and creating wealth. This Center will be the focal point of a long-term vision to diversify the economy of the region by investing in "locally grown" high-tech companies which have opportunities for success and the potential to employ skilled employees for a premium wage.

The west central Wisconsin region has lost considerable employment due to plant closures resulting from: foreign competition, foreign relocations, downsizing, and conversion to modern production techniques. In response, the economic development partnership has committed to a strategy which focuses on entrepreneurship, targeted industries, productivity enhancement, and alternative markets. The Center is a piece of this strategy as the region increases its economic diversity through technology developments.

*D. A high degree of commitment.*

There is a strong commitment for this project throughout the region. Two studies (Nanotechnology Incubator and a Technology Incubator Business Plan) have indicated interest and support for the construction of an Innovation Center. The Chippewa Valley Technical College has committed a significant amount of its own funds to remodel a portion of their Gateway Campus building as the initial phase of the NanoRite Center for Innovation. In addition, the CVTC has generated support from the State of Wisconsin Department of Commerce, Governor Doyle's office, and the legislators of the region. Strong support has been exhibited by the congressional delegation. An initial commitment from the local private sector has been made and numerous contacts have been made to local private sector contributors with encouraging results.

## **Funding Priority**

The Nanorite Center for Innovation will fill an infrastructure need for the west central Wisconsin region. Presently, there is no incubator-type facility which has the appropriate environment for technology-related businesses such as: clean rooms,

vibration free labs, technology equipment, etc. This project will establish a place for businesses that need these types of facilities to nurture their business.

This Center will focus on technology-related businesses which can capitalize on the support of existing technology businesses, university and technical college staff and students, and the business service network. These targeted industries are:

- Advanced materials
- Semiconductors
- Energy/environment
- Manufacturing and engineering
- Nanoelectronics
- Biotech/pharma

This targeted focus will begin a path to diversifying the economy of the region and, hopefully, in the long run replace some of the jobs lost to the recent plant closures.

The diversification of the regional economy is an effort that takes patience and commitment. It will take a long-term effort to realize the benefits of the NanoRite Center for Innovation. The Chippewa Valley Technical College and its partners recognize the long-term nature of this investment and are committed to establishing the NanoRite Center for Innovation for the economic future of the region.

Chippewa Valley Technical College's ability to administer, implement, and market this project is evident based on current and past partnership activities. The College has established itself as a leader in developing partnerships with other educational institutions, collaborating with business and industry, and pro-actively addressing the workforce needs of the region. A few examples:

- CVTC's Nanoscience Technician Associate Degree program is being provided in partnership with University of Minnesota; all CVTC students attend U of M their final semester.
- "The Chippewa Valley Health Partnership" has brought CVTC, Marquette University School of Dentistry, and University of Wisconsin Health - Eau Claire Family Medicine Clinic together under one roof. Together, the three partners train health professionals and serve community members in CVTC's Health Education Center.
- CVTC's Emergency Services Education Center collaborates with Eau Claire Fire Department, in a shared facility.
- Beginning in 2001, a partnership between CVTC and Haas Automation, Inc. created the largest Haas Technical Center in the nation. Students are trained on top-of-the-line equipment which is also accessible to area

businesses, with Haas updating the 16 state-of-the-art numerical controlled machine tools every two years.

CVTC has significant grant management experience, with well-developed in-house capabilities for financial oversight, funds management, and reporting requirements. In 2004, CVTC completed a 92,000 square foot expansion of its Health Education Center. This \$12,000,000 project involved the management of funds from many public and private sources.

In addition, CVTC has accrued experience managing incubation activity through involvement with the Chippewa Valley Incubator, which develops light manufacturing companies, not technology. College staff have provided services for these incubation tenants and have served on the board of directors. With a greatly different focus, NanoRite Center for Innovation will in no way duplicate the existing services, as both centers will meet distinct regional needs.

### Proposed Time Schedule for the Project

The preliminary time schedule for the project is:

Start Date:	June 2006
Begin Construction:	October 2006
Complete Construction:	August 2007

### Proposed Budget Line Items

<b>Construction</b> (current gap)	\$257,000.00
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#### Equipment:

MABA6 Karl Suss Contact Aligner	\$375,000.00
Oxide Plasma etcher	\$75,000.00
Metal Plasma etcher	\$125,000.00
PE CVD	\$100,000.00
Wet bench	\$15,000.00
Wafer defect monitor	\$25,000.00
Metal Film Thickness Monitor, 4-Point Probe	\$10,000.00
Asher/Barrel Etcher	\$20,000.00
HMDS Vapor Prime Oven	\$15,000.00
Raman spectrometer	\$20,000.00

Total Equipment	\$780,000.00
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**Staffing:**

NanoRite Manager (1 FTE)	\$91,676.00
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Clean Room and Equipment Technicians (2 FTE)	\$152,494.00
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Nanotechnology Faculty (1 FTE)	\$89,230.00
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Total Staffing	\$333,400.00
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<b>Grand Total</b>	<b>\$1,370,400.00</b>
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5002

DN

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2007 BILL

Regen

1

AN ACT relating to: increasing appropriations for nanoscience positions and

2

equipment at the University of Wisconsin-Eau Claire and the University of

3

Wisconsin-Stout, and Chippewa Valley Technical College

Analysis by the Legislative Reference Bureau

and the Technical College System Board

This bill increases appropriations to the Board of Regents (board) of the University of Wisconsin (UW) System to fund positions and equipment for nanoscience at UW-Eau Claire and UW-Stout. Specifically, the bill does the following:

UW-Eau Claire

The bill increases appropriations by \$731,250 in fiscal year 2007-08 and by \$1,183,250 in fiscal year 2008-09 for the purpose of increasing the number of FTE positions for faculty and staff at UW-Eau Claire by 4.0 in fiscal year 2007-08 and by 8.0 in fiscal year 2008-09. The board must ensure that the positions support nanoscience education and training at UW-Eau Claire. In addition, the bill increases appropriations by \$365,625 in fiscal year 2007-08 and by \$365,625 in fiscal year 2008-09 to acquire new nanoscience instrumentation and sample preparation equipment, and to support instrumentation and laboratory maintenance and rotation, at UW-Eau Claire.

UW-Stout

The bill increases appropriations by \$905,625 in fiscal year 2007-08 and by \$306,375 in fiscal year 2008-09 for the purpose of increasing the number of FTE positions for faculty and staff at UW-Stout by 6.0 in fiscal year 2007-08 and by 3.0

**BILL**

in fiscal year 2008-09. The board must ensure that the positions support nanoscale science and engineering education and training at UW-Stout. In addition, the bill increases appropriations by \$452,813 in fiscal year 2007-08 and by \$452,812 in fiscal year 2008-09 to acquire equipment and instrumentation needed for advanced study, characterization, fabrication, and processing in nanoscale engineering at UW-Stout.

2A ✓  
Fix component

For further information see the *state* <sup>and local</sup> fiscal estimate, which will be printed as an appendix to this bill.

*The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:*

1           **SECTION 1. Nonstatutory provisions.**

2           (1) POSITIONS. The Board of Regents of the University of Wisconsin System  
3 shall ensure that the positions authorized under SECTION 2 (1) and (3) of this act  
4 support nanoscience education and training at the University of Wisconsin-Eau  
5 Claire and nanoscale science and engineering education and training at the  
6 University of Wisconsin-Stout.

7           **SECTION 2. Fiscal changes.**

8           (1) UNIVERSITY OF WISCONSIN-EAU CLAIRE; POSITIONS. In the schedule under  
9 section 20.005 (3) of the statutes for the appropriation to the Board of Regents of the  
10 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
11 affected by the acts of 2007, the dollar amount is increased by \$731,250 for fiscal year  
12 2007-08 to increase the authorized FTE positions by 4.0 GPR positions for faculty  
13 and staff at the University of Wisconsin-Eau Claire, and the dollar amount is  
14 increased by \$1,183,250 for fiscal year 2008-09 to increase the authorized FTE  
15 positions by 8.0 GPR positions for faculty and staff at the University of  
16 Wisconsin-Eau Claire.

17           (2) UNIVERSITY OF WISCONSIN-EAU CLAIRE; EQUIPMENT. In the schedule under  
18 section 20.005 (3) of the statutes for the appropriation to the Board of Regents of the

**BILL**

1 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
2 affected by the acts of 2007, the dollar amount is increased by \$365,625 for fiscal year  
3 2007–08 and the dollar amount is increased by \$365,625 for fiscal year 2008–09 to  
4 acquire new nanoscience instrumentation and sample preparation equipment, and  
5 to support instrumentation and laboratory maintenance and rotation, at the  
6 University of Wisconsin–Eau Claire.

7 (3) UNIVERSITY OF WISCONSIN–STOUT; POSITIONS. In the schedule under section  
8 20.005 (3) of the statutes for the appropriation to the Board of Regents of the  
9 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
10 affected by the acts of 2007, the dollar amount is increased by \$905,625 for fiscal year  
11 2007–08 to increase the authorized FTE positions by 6.0 GPR positions for faculty  
12 and staff at the University of Wisconsin–Stout, and the dollar amount is increased  
13 by \$306,375 for fiscal year 2008–09 to increase the authorized FTE positions by 3.0  
14 GPR positions for faculty and staff at the University of Wisconsin–Stout.

15 (4) UNIVERSITY OF WISCONSIN–STOUT; EQUIPMENT. In the schedule under section  
16 20.005 (3) of the statutes for the appropriation to the Board of Regents of the  
17 University of Wisconsin System under section 20.285 (1) (a) of the statutes, as  
18 affected by the acts of 2007, the dollar amount is increased by \$452,813 for fiscal year  
19 2007–08 and the dollar amount is increased by \$452,812 for fiscal year 2008–09 to  
20 acquire equipment and instrumentation needed for advanced study,  
21 characterization, fabrication, and processing in nanoscale engineering at the  
22 University of Wisconsin–Stout.

23 ~~(END)~~



2005

Nonstat File Sequence: **DDD**

LRB \_\_\_\_\_/\_\_\_\_

\$\$\$ CHANGE

- In the component bar:  
 For the action phrase, execute: ..... create → action: → \*NS: → \$change  
 For the budget action phrase, execute: .... create → action: → \*NS: → 92XX  
 For the text, execute: ..... create → text: → \*NS: → \$change
- Nonstatutory subunits are numbered automatically. Fill in the SECTION # or subsection # only if a "frozen" number is needed. Below, for the budget, fill in the 9200 department code.

**SECTION #** 92 **].** <sup>Fiscal</sup> **Appropriation changes; ....**  
~~..... technical college .....~~

~~..... (#) ... CHIPPewa VALLEY TECHNICAL COLLEGE (C) .....~~

..... In the schedule under section  
 20.005 (3) of the statutes for the appropriation to the technical  
~~..... college system board .....~~

under section 20. 292 (1) (a) of the statutes, as affected by the acts of  
 2007, the dollar amount is in creased by \$ . . . 1, 113, 400 . . for fis-  
 cal year 2007-08 and the dollar amount is in creased  
 by \$ . . 1, 113, 400 . . for fiscal year 2008-09 (to increase funding

~~for the [purpose] [purposes] for which the appropriation is made~~ to increase fund-  
 ing for positions and equipment related to  
nanotechnology at Chippewa Valley Technical  
College

→ (End)

\* Use the 2nd alternative if the purpose of the increase or decrease is more limited than the purpose or purposes of the appropriation as currently shown in the text of ch. 20, stats.

d-note





2A

subsubhead  
B.C.

↳ Chippewa Valley Technical College

4 The bill increases <sup>more</sup> appropriations by  
in 2007-08 and 2008-09 fiscal years  
\$1,113,400 to fund positions and equipment  
related to nanotechnology at Chippewa Valley  
Technical College ⊙

(DN)

Michael Richards:

I emailed you on January 23 regarding the funding for Chippewa Valley Technical College. I was unsure if the money was for the 2007-08 fiscal year only or if you wanted to appropriate the specified amount in each fiscal year. You sent me the proposal, but as I mentioned in my January 25 email, the outline of expenditures ~~was not~~ did not answer my question. In this draft, I have assumed that you want to appropriate \$1,113,400 in each year of the fiscal biennium. If I'm wrong, please let me know and I'll redraft.

PG

**DRAFTER'S NOTE  
FROM THE  
LEGISLATIVE REFERENCE BUREAU**

LRB-0117/2dn  
MDK:jld:jf

February 12, 2007

Michael Richards:

I emailed you on January 23 regarding the funding for Chippewa Valley Technical College. I was unsure if the money was for the 2007-08 fiscal year only or if you wanted to appropriate the specified amount in each fiscal year. You sent me the proposal, but as I mentioned in my January 25 email, the outline of expenditures did not answer my question. In this draft, I have assumed that you want to appropriate \$1,113,400 in each year of the fiscal biennium. If I'm wrong, please let me know and I'll redraft.

Peter R. Grant  
Managing Attorney  
Phone: (608) 267-3362  
E-mail: [peter.grant@legis.wisconsin.gov](mailto:peter.grant@legis.wisconsin.gov)

## Grant, Peter

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**From:** Richards, Mike  
**Sent:** Tuesday, February 20, 2007 8:40 AM  
**To:** Grant, Peter  
**Cc:** Seaholm, Matthew  
**Subject:** LRB 0117/2

Mr. Grant:

I am writing to ask yet another revision to LRB 0117/2, relating to the NanoSTEM Initiative between the Chippewa Valley Technical College, UW-Stout and UW-Eau Claire.

Please change the appropriation for the Chippewa Valley Technical College to:

- \$1,113,400 in 2007-2008
- \$333,400 in 2008-2009

Also, we are granting permission to the office of Rep. Moulton to have a companion drafted of this legislation--Matt Seaholm is the staffer in charge in that office. Thanks Peter.

*Michael D. Richards*

*Michael D. Richards*

*Chief of Staff*

*Office of State Senator Ted Kanavas*

*State Capitol, Room 106 South*

*Madison, WI 53707-7882*

*608-266-9174*

2007 BILL

5054

8 PG

Regen

1 AN ACT relating to: increasing appropriations for nanoscience positions and  
 2 equipment at the University of Wisconsin-Eau Claire, the University of  
 3 Wisconsin-Stout, and Chippewa Valley Technical College.

*Analysis by the Legislative Reference Bureau*

This bill increases appropriations to the Board of Regents (board) of the University of Wisconsin (UW) System and the Technical College System Board to fund positions and equipment for nanoscience at UW-Eau Claire and UW-Stout. Specifically, the bill does the following:

***UW-Eau Claire***

The bill increases appropriations by \$731,250 in fiscal year 2007-08 and by \$1,183,250 in fiscal year 2008-09 for the purpose of increasing the number of FTE positions for faculty and staff at UW-Eau Claire by 4.0 in fiscal year 2007-08 and by 8.0 in fiscal year 2008-09. The board must ensure that the positions support nanoscience education and training at UW-Eau Claire. In addition, the bill increases appropriations by \$365,625 in fiscal year 2007-08 and by \$365,625 in fiscal year 2008-09 to acquire new nanoscience instrumentation and sample preparation equipment, and to support instrumentation and laboratory maintenance and rotation, at UW-Eau Claire.

***UW-Stout***

The bill increases appropriations by \$905,625 in fiscal year 2007-08 and by \$306,375 in fiscal year 2008-09 for the purpose of increasing the number of FTE positions for faculty and staff at UW-Stout by 6.0 in fiscal year 2007-08 and by 3.0

**BILL**

in fiscal year 2008-09. The board must ensure that the positions support nanoscale science and engineering education and training at UW-Stout. In addition, the bill increases appropriations by \$452,813 in fiscal year 2007-08 and by \$452,812 in fiscal year 2008-09 to acquire equipment and instrumentation needed for advanced study, characterization, fabrication, and processing in nanoscale engineering at UW-Stout.

**CHIPPEWA VALLEY TECHNICAL COLLEGE**

The bill increases appropriations by \$1,113,400 in fiscal year 2007-08 and 2008-09 to fund positions and equipment related to nanotechnology at Chippewa Valley Technical College.

For further information see the *state and local* fiscal estimate, which will be printed as an appendix to this bill.

\$333,400  
in  
fiscal  
year

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***The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:***

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8           (1) UNIVERSITY OF WISCONSIN-EAU CLAIRE; POSITIONS. In the schedule under  
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11 affected by the acts of 2007, the dollar amount is increased by \$731,250 for fiscal year  
12 2007-08 to increase the authorized FTE positions by 4.0 GPR positions for faculty  
13 and staff at the University of Wisconsin-Eau Claire, and the dollar amount is  
14 increased by \$1,183,250 for fiscal year 2008-09 to increase the authorized FTE

**BILL**

1 positions by 8.0 GPR positions for faculty and staff at the University of  
2 Wisconsin-Eau Claire.

3 (2) UNIVERSITY OF WISCONSIN-EAU CLAIRE; EQUIPMENT. In the schedule under  
4 section 20.005 (3) of the statutes for the appropriation to the Board of Regents of the  
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10 University of Wisconsin-Eau Claire.

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23 2007-08 and the dollar amount is increased by \$452,812 for fiscal year 2008-09 to  
24 acquire equipment and instrumentation needed for advanced study,

**BILL**

1 characterization, fabrication, and processing in nanoscale engineering at the  
2 University of Wisconsin-Stout.

3 (5) CHIPPEWA VALLEY TECHNICAL COLLEGE. In the schedule under section 20.005  
4 (3) of the statutes for the appropriation to the technical college system board under  
5 section 20.292 (1) (a) of the statutes, as affected by the acts of 2007, the dollar amount  
6 is increased by \$1,113,400 for fiscal year 2007-08 and the dollar amount is increased  
7 by ~~\$1,113,400~~ <sup>\$333,400</sup> for fiscal year 2008-09 to increase funding for positions and equipment  
8 related to nanotechnology at Chippewa Valley Technical College.

9 (END)



**Parisi, Lori**

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**From:** Richards, Mike  
**Sent:** Wednesday, April 04, 2007 2:31 PM  
**To:** LRB.Legal  
**Subject:** Draft Review: LRB 07-0117/3 Topic: Advanced science, technology, engineering and mathematics partnership initiative between UW-Stout, UW-Eau Claire, and Chippewa Valley Technical College

Please Jacket LRB 07-0117/3 for the SENATE.