

# **UAF Budget Requests FY11**

**August 4, 2009**



## UAF Priority Request July 28, 2009

	State Appropriation	Receipt Authority	Total
<b><u>Technical Adjustments</u></b>			
<i>Alaska Center for Energy and Power Director and Office</i>	500.0	1,318.0	1,818.0
<i>Energy Outreach in Cooperation with CES</i>	450.0	1,350.0	1,800.0
<i>Virology Operating</i>	263.0	-	263.0
<b>Technical Adjustments SubTotal</b>	<b>1,213.0</b>	<b>2,668.0</b>	<b>3,881.0</b>

### **Fixed Cost Increases**

<b>Non-Personnel Services Fixed Costs Increases</b>	<b>1,520.0</b>	<b>735.0</b>	<b>2,255.0</b>
<i>Athletics Travel</i>	260.0	135.0	395.0
<i>IT Contractual/Network</i>	200.0	TBD	200.0
<i>Funding for UAF Development Operations</i>	200.0	TBD	200.0
<i>KUAC Digital Transmitting</i>	150.0	TBD	150.0
<i>Facilities Maintenance and Repair</i>	710.0	600.0	1,310.0
<b>Utility Cost Increases</b>	<b>2,500.0</b>	TBD	<b>2,500.0</b>
<b>Compliance Mandates</b>	<b>250.0</b>	-	<b>250.0</b>
<i>EHS&amp;RM Compliance Mandates</i>	100.0	TBD	100.0
<i>EHS&amp;RM Spill Prevention</i>	150.0	TBD	150.0
<b>New Facility Operating and Maintenance Costs</b>	<b>729.4</b>	<b>150.0</b>	<b>879.4</b>
<i>Lena Point - Remaining Operating Costs</i>	450.0	150.0	600.0
<i>CES/CRCD Anchorage Lease Space</i>	279.4	-	279.4
<b>Fixed Cost Increases SubTotal</b>	<b>4,999.4</b>	<b>885.0</b>	<b>5,884.4</b>

### **Priority Program Enhancement and Growth**

#### **FY10 - Funding the other 1/2**

<b>Health Academic Programs</b>	<b>175.4</b>	<b>98.0</b>	<b>273.4</b>
<i>Psychology Clinic</i>	87.4	50.0	137.4
<i>RC HP - Rural Human Services</i>	40.8	16.0	56.8
<i>TVC - Medical Assisting Faculty - Allied Health</i>	47.2	32.0	79.2
<b>SubTotal</b>	<b>175.4</b>	<b>98.0</b>	<b>273.4</b>

### **TIER 1 Requests**

<b>College Transitions</b>	<b>320.7</b>	<b>145.0</b>	<b>465.7</b>
<i>ASRA Engineering Components</i>	75.0	100.0	175.0
<i>Interior Aleutians Campus Early College High School Initiative</i>	95.7	5.0	100.7
<i>Individual Technology Based Math and Summer Bridge Programs</i>	150.0	40.0	190.0
<b>Student Achievement</b>	<b>620.0</b>	<b>24.5</b>	<b>644.5</b>
<i>Student Services Managers for each of the rural campuses</i>	220.0	-	220.0

	State Appropriation	Receipt Authority	Total
<i>Honors Program and Undergraduate Research Enhancement</i>	200.0	24.5	224.5
<i>Undergraduate Research Initiative</i>	200.0	-	200.0
<b>Engineering</b>	<b>820.0</b>	<b>551.9</b>	<b>1,371.9</b>
<i>College of Engineering and Mines Core Instructor Support (Engineering Science)</i>	100.0	46.8	146.8
<i>Mechanical Engineering Faculty in Alternative Energy</i>	120.0	100.0	220.0
<i>Electrical/Computer Engineering Faculty to Support Computer Engineering Program</i>	120.0	100.0	220.0
<i>Engineering Student Success Lab</i>	75.0	150.0	225.0
<i>Petroleum Engineering Faculty (Proposed New Program in Chemical Engineering)</i>	120.0	100.0	220.0
<i>Teaching Assistant Support</i>	180.0	20.0	200.0
<i>Physics and Mathematics Support for Engineering Students</i>	105.0	35.1	140.1
<b>Climate</b>	<b>575.0</b>	<b>1,800.0</b>	<b>2,375.0</b>
<i>High-Resolution Localized Forecasts for Managers and Policymakers (SNAP)</i>	225.0	700.0	925.0
<i>Information on Climate Change to Inform Planning and Preparation (ACCAP - Alaska Center for Climate Assessment and Policy )</i>	150.0	450.0	600.0
<i>Ecological Modeling: Responses of Biological Systems to Climate Change</i>	200.0	650.0	850.0
<b>Biomedical Capacity</b>	<b>366.1</b>	<b>1,666.8</b>	<b>2,032.9</b>
<i>Joint UAF Public Health Laboratory Position in Virology</i>	75.3	305.8	381.1
<i>Faculty Position in Virology and Infectious Disease</i>	100.4	351.6	452.0
<i>Faculty Position in Immunology</i>	100.4	359.4	459.8
<i>Veterinary Services Animal Health Technician</i>	45.0	325.0	370.0
<i>Veterinary Services Laboratory Technician</i>	45.0	325.0	370.0
<b>Advanced Indigenous Studies</b>	<b>217.7</b>	<b>75.0</b>	<b>292.7</b>
<i>Indigenous Studies PhD program &amp; Alaska Native Knowledge Network</i>	217.7	75.0	292.7
<b>Workforce Programs</b>	<b>403.6</b>	<b>104.3</b>	<b>507.9</b>
<i>IAC - Tribal Management</i>	90.0	20.0	110.0
<i>IAC - Alaska Roads Scholar Program</i>	90.0	20.0	110.0
<i>TVC - Law Enforcement Academy Base Funding</i>	98.6	64.3	162.9
<i>TVC - Fairbanks Process Technology Expansion</i>	125.0	-	125.0
<b>Teacher Education</b>	<b>227.1</b>	<b>81.6</b>	<b>139.4</b>
<i>Special Education Teacher Preparation</i>	142.1	27.2	169.3

	State Appropriation	Receipt Authority	Total
<i>School of Education Program Access Through Student Teaching in Rural Districts</i>	85.0	54.4	139.4
<b>Marine Advisory program</b>	<b>614.0</b>	-	<b>614.0</b>
<i>Economic Sustainability, Application of University Research, and Response to Community Needs in Coastal Alaska: Outreach and Engagement by the Marine Advisory Program</i>	614.0	-	614.0
<b>TIER 1 SubTotal</b>	<b>4,164.2</b>	<b>4,449.1</b>	<b>8,444.0</b>

## **TIER 2 Requests**

### **Priority Program Enhancement and Growth**

<b>College Transitions</b>	<b>125.0</b>		<b>125.0</b>
<i>Alaska Summer Research Academy</i>	75.0	-	75.0
<i>Engineering Outreach to Middle and High School Students</i>	50.0	-	50.0
<b>Climate</b>	<b>250.0</b>	<b>700.0</b>	<b>950.0</b>
<i>Climate Change Impacts on Transportation</i>	250.0	700.0	950.0
<b>Biomedical Capacity</b>	<b>200.0</b>	<b>800.0</b>	<b>1,000.0</b>
<i>Post-doctoral Support for Biomedical and Behavioral Health Research</i>	200.0	800.0	1,000.0
<b>Workforce Programs</b>	<b>478.5</b>	<b>40.1</b>	<b>518.6</b>
<i>IAC - Construction Trades Technology</i>	100.0	20.0	120.0
<i>NWC - Bering Strait Workforce Enhancement</i>	111.9	20.1	132.0
<i>KUC - ITS Faculty Position</i>	65.6	-	65.6
<i>Applied Business</i>	111.0	-	111.0
<i>Auto Technology</i>	90.0	-	90.0
<b>MAU Specific</b>	<b>317.6</b>	<b>140.0</b>	<b>457.6</b>
<i>UAF Graduate Student Success with a Focus on the Indigenous Studies Graduate Program</i>	117.6	140.0	257.6
<i>Alaska Volcano Observatory : Monitoring and Prediction of Eruptions and Ash Plume Movements</i>	200.0	-	200.0
<b>Energy and Cooperative Extension Service</b>	<b>400.0</b>	<b>1,200.0</b>	<b>1,600.0</b>
<i>Critical Faculty Leaders on Geothermal Technologies and Exploration, Renewable Power, and Alternative Fuels</i>	400.0	1,200.0	1,600.0
<b>Student Achievement</b>	<b>240.0</b>	-	<b>240.0</b>
<i>Freshman Seminars and Supplemental Instruction</i>	100.0	-	100.0
<i>Veterans Financial Aid/GI Bill Advisor</i>	80.0	-	80.0
<i>Math Intensive for Rural Students</i>	60.0	-	60.0
<b>TIER 2 SubTotal</b>	<b>2,011.1</b>	<b>2,880.1</b>	<b>4,891.2</b>

### **Addressing Gap in Teacher Training**

	State Appropriation	Receipt Authority	Total
<i>Outreach and Retention Coordinator</i>	100.0	-	100.0
<i>Financial Aid for Future Teachers</i>	250.0	-	250.0
Teacher Training SubTotal	<b>350.0</b>	-	<b>350.0</b>
TOTAL of All Listings	<b>12,913.1</b>	<b>10,980.2</b>	<b>23,724.0</b>

**Capital Research Requests**

**Energy**

<i>ACEP-AEA Partnership for Energy Solutions</i>	10,000.0	-	10,000.0
<i>Rural Power Project</i>	1,000.0	-	1,000.0
<i>Transportation Fuels Alternative</i>	1,000.0	-	1,000.0
<i>Sustainable Infrastructure/CCHRC Collaboratio</i>	1,000.0	-	1,000.0
<i>Alaskan Coal</i>	1,000.0	-	1,000.0
<i>Carbon Sequestration Options</i>	1,250.0	-	1,250.0
<i>Biomass Energy Program</i>	4,600.0	-	4,600.0
Energy Projects Total	<b>19,850.0</b>	-	<b>19,850.0</b>

**Climate**

<i>Climate Responding to Emerging Requests from</i>	8,000.0	-	8,000
<i>Climate Ocean Acidification</i>	1,000.0	-	1,000
<i>Climate Commercial Fisheries</i>	1,000.0	-	1,000
<i>Climate Improving Sea Ice Forecasts (Including</i>	1,500.0	-	1,500
<i>Climate Permafrost Dynamics</i>	1,000.0	-	1,000
<i>Climate Improving Weather Predictions</i>	1,000.0	-	1,000
<i>Climate Coastal Erotrion, Inumdation</i>	1,000.0	-	1,000
<i>Climate Climate Data Management</i>	1,000.0	-	1,000
<i>Climate Alaska Monitoring and Response Capa</i>	4,000.0	-	4,000
<i>Climate Natural Hazards Seismic Monitoring</i>	1,000.0	-	1,000
Climate Projects Total	<b>20,500.0</b>	-	<b>20,500.0</b>

Capital Research Requests Total	<b>40,350.0</b>	-	<b>40,350.0</b>
---------------------------------	-----------------	---	-----------------

# UAF FY11 Budget Request

## **FY11 UAF Budget Request Narratives**

(In same order as Request)

### **TECHNICAL ADJUSTMENTS**

These three items were all FY10 base requests, but mistakenly were funded as one-time items legislatively)

#### **Alaska Center for Energy and Power Director and Office**

(GF \$500.0, NGF \$1,318.0, Total \$1,818.0)

Alaska's world class energy resources -- including oil, gas, and coal -- are the source of much of the state's health. In Alaska, we have unique challenges and opportunities associated with developing our energy resources, and the university seeks to fulfill the need for basic and applied energy research at a critical time in our state's history. Alaska's rural communities have reached a crisis level in the escalating cost of energy. Along the Railbelt, traditional fossil fuel based resources used for power generation, such as Cook Inlet natural gas, are in decline. Yet the state consumes 40 percent more fuel per capita than any other state, and more than three times the national per-capita average. New energy research and testing is needed for the short and long term to lower the cost of energy throughout Alaska and develop economic opportunities for the State, its residents, and its industries. This increment is to sustain and build upon the initial investment of the Institute of Northern Engineering in the Alaska Center for Energy and Power (ACEP). It will provide salary for the ACEP Director; a full-time director is needed for the sustainability of the energy program, and to set the course for future energy research both at ACEP and across the university system. Funds are also requested to support faculty leaders in critical areas such as geothermal technologies and exploration, renewable power (e.g., wind, solar, bio- and hydrokinetic), and alternative fuels. In addition, UAA seeks a tenure-track energy economist faculty position for ISER to lead the Program on Energy and the Alaska Economy. Support staff positions will manage grants and contracts and supervise the acquisition, maintenance, and operation of energy research equipment. (An additional \$300,000 is requested for UAA).

#### **Energy Outreach in Cooperation with CES**

(GF \$450.0, NGF \$1,350.0, Total \$1,800.0)

Cooperative Extension will work with ACEP and other University researchers to bring applicable energy research information to communities throughout the State. Alaska's rural communities have reached a crisis level in the escalating cost of energy. Along the Railbelt, traditional fossil fuel based resources used for power generation, such as Cook Inlet natural gas, are in decline. Yet the state consumes 40 percent more fuel per capita than any other state, and more than three times the national per-capita average. New energy research and testing, to be conducted through the Alaska Center for Energy and Power, is needed for the short and long term to lower the cost of energy throughout Alaska and develop economic opportunities for the State, its residents, and its industries. The university and collaborating organizations also conduct research on renewable energy sources and on building construction and renovation techniques that conserve energy. The Cooperative Extension Service is the University unit that disseminates research information in an understandable and usable form to Alaskans in both urban and rural settings.

#### **Virology Operating**

(GF \$263.0)

This request covers the maintenance requirement and anticipated new facility operating costs (of this amount, \$150K was funded one-time).

## UAF FY11 Budget Request

### FIXED COST INCREASES

#### Non-Personnel Services Fixed Costs Increases

##### Athletics Travel

(GF \$260.0, NGF \$135.0, Total \$395.0)

The increment would provide funding for intercollegiate athletic team travel to offset the observed 10-15% annual cost increase. Athletics travel expenses increase each year. Airline officials have projected that airline tickets will continue to increase at a rate between 15-20% for FY10 and beyond. UAF has significant travel. In order to continue NCAA competition, this funding request is necessary to help cover recurring and increasing fixed costs. Therefore, we are requesting \$260K to the base operating budget.

##### IT Contractual/Network

(GF \$200.0, NGF \$TBD)

Hardware replacement, software licenses (MeetingMaker, MS Office, and server operating systems), training, and network infrastructure cost growth.

##### Funding for UAF Development Operations

(GF \$200.0)

The UA Foundation eliminated funding support for UAF development in FY 10. \$200K will allow the development office to maintain the level of success UAF has enjoyed the past three years. The funds would allow the development office to hire a development officer and support staff who will work with deans and directors to increase the private giving to their schools, colleges, and units. This requested funding will help Development to foster UAF Strategic Plan 2010 goals for student success, community engagement and economic development, enrollment and retention, and philanthropy. The FY11 request will improve university infrastructure and increase university generated revenue. This request will allow University Advancement to efficiently and effectively meet Alaska's needs by providing top quality education, recreation opportunities, and out of classroom experiences for our students. In addition, UAF will be able to provide quality community outreach and public relations programs and continue to build a dynamic philanthropic program.

##### KUAC Digital Transmitting

(GF \$150.0, NGF \$TBD)

Federal statute required all television stations to convert to digital transmission by June 12, 2009. To accommodate this mandate, KUAC was required to upgrade its equipment to transmit in digital format. Operation of that digital equipment uses software which requires payment of annual maintenance and license fees. This request would provide the funding necessary to meet this requirement.

##### Facilities Maintenance and Repair

(GF \$710.0, NGF \$600.0, Total \$1,310.0)

UAF's annual maintenance and repair is calculated at a minimum 1.5 percent of current building value. Each year the annual operating budget dedicated to facilities maintenance, often referred to as M&R, is increased to keep pace with the ever increasing building maintenance need. This request covers that requirement.

#### Utility Cost Increases

##### Utility Cost Increases

(GF \$2,500.0, NGF \$TBD)

This request covers the projected FY11 utility and fuel oil cost increases. This increment assumes that the State will provide base funding for FY07, FY08, FY09 and FY10 utility increases since base funding has not been appropriated. FY07 increases were covered through a utility trigger mechanism. Similar trigger

## UAF FY11 Budget Request

mechanisms were included in the FY08 and FY09 budgets; however, since FY07 funds were only one-time, funds received in FY08 and FY09 simply keep UA at the FY07 level.

### Compliance Mandates

#### EHS&RM Compliance Mandates

(GF \$100.0, NGF \$TBD)

Additional positions are needed to meet agency mandates, SW risk expectations, and unforeseen incidents affecting Environmental, Health, Safety, and Risk Management. The non-general fund request will support required insurance, risk assessment, and operation increases.

#### EHS&RM Spill Prevention

(GF \$150.0, NGF \$TBD)

Per State of Alaska Statute, UAF is required to inspect underground fuel tanks on a regularly scheduled basis. This request would fund the personnel, replacements, and repairs required to carry out that function.

### New Facility Operating and Maintenance Costs

#### Lena Point - Remaining Operating Costs

(GF \$450.0, NGF \$150.0, Total \$600.0)

This request covers the remaining maintenance and operating costs which were not funded in FY09.

#### CES/CRCD Anchorage Lease Space

(GF \$279.4)

Leased space in the Carlton Trust Building in Anchorage has become unsuitable. The existing space does not meet program needs and a new location should provide for improved parking for students, faculty, staff, and visitors in a more safe and secure location.

## PRIORITY PROGRAM ENHANCEMENT AND GROWTH

### FY10 – Funding the Other Half

#### Health and Academic Programs

##### Psychology Clinic

(GF \$87.4, NGF \$50.0, Total \$137.4)

The UAF Clinic is the training site and behavioral health research facility for doctoral student clinicians. The Clinic creates a licensure path for both the students and new faculty, which is essential to American Psychological Association accreditation and clinical faculty recruitment. The current Psychology Clinic facility was created in the Gruening Building in 2006 using reallocated funds after the originally planned site, the UAF Student Health and Counseling Center, was eliminated as an option. UAF has no budget to operate the facility. This increment will fund baseline operations and planned growth of the clinic. Within two years, the clinic will function at full capacity as part of a four-year instructional program with double the current number of psychology PhD students and their clients. The psychology clinic also serves 80 graduate students in the UAF M.Ed. Guidance and Counseling program as their first site of practicum clinical training. Because the M.Ed. program has no budget to support this critical need, this increment assists both programs.

## UAF FY11 Budget Request

### RC HP - Rural Human Services

(GF \$40.8, NGF \$16.0, Total \$56.8)

The Rural Human Services Program reaches the members of our most remote Alaskan rural communities by educating their natural healers. These healers, or behavioral health aids, return to their homes, saving lives and giving hope during the darkest hours. Our elders in their wisdom guide this voyage... a counselor in every village... one village at a time. The program offers a culturally appropriate training program designed for rural human service workers. Skills and trainings are provided in services such as: crisis intervention, suicide prevention, and community development. Counseling in mental health areas such as substance abuse, interpersonal violence, grief, and healing are also offered. The Rural Human Service Program is built on Alaska Native traditional values. A unique aspect of RHS is that it integrates elders into the program design to honor their gift of wisdom while instructing students in a course blend of Native and Western knowledge, values, and principles. RHS embraces the Alaska Mental Health Board's goal to have at least one trained rural human service provider in each of Alaska's 171 villages. The additional faculty member is needed to meet this goal. The program represents multiple successful partnerships and collaborations in rural Alaska, with faculty from the University of Alaska, representatives from the Alaska Department of Health and Human Services, Alaska Native elders, over twelve Alaska Native Health Corporations and their sub-recipients, rural mental health centers, and various non-profit agencies.

### TVC - Medical Assisting Faculty - Allied Health

(GF \$47.2, NGF \$32.0, Total \$79.2)

UAF Tanana Valley Campus is in need of base funding for a tenure-track faculty position in its Allied Health/Medical Assisting Certificate and AAS program. We currently have one faculty member who teaches and administers Medical Assisting AAS and Certificate, Healthcare Reimbursement Certificate, and the Medical/Dental Reception Certificate. We have been asked to extend the medical assisting program to Bethel, and are in the process of doing so. We also have the opportunity to double the number of local students enrolled and graduating from our medical assisting certificate. However, this will require additional faculty resources for oversight of the program to meet our external accreditation standards, and to meet the demands of teaching during the day. If we can develop an excellent model for extending Medical Assisting to Rural locations, we would like to be able to offer a rotation of the program to other distance sites. We cannot do this until we have additional full-time faculty to support program expansion, student advising and teaching.

## TIER 1 Requests

### **College Transitions**

#### ASRA Engineering Components

(GF \$75.0, NGF \$100.0, Total \$175.0)

Funds are sought to add engineering components to the Alaska Summer Research Academy (ASRA). This budget item seeks to expand a successful bridging recruitment program from the sciences to include additional engineering components. Funding will be used to offer engineering sections of interest to young students, involving topics such as energy, environment, transportation, computers, construction and others.

#### Interior Aleutians Campus Early College High School Initiative

(GF \$95.7, NGF \$5.0, Total \$100.7)

The purpose of the Early College High School Initiative is to promote a "bold approach, based on the principle that academic rigor, combined with the opportunity to save time and money, is a powerful motivator for students to work hard and meet serious intellectual challenges. Early college high schools blend high school and college in a rigorous yet supportive program, compressing the time it takes to complete a high school diploma and the first two years of college." ([www.earlycolleges.org](http://www.earlycolleges.org)) Housed in IAC, the Early College Program will be offered upon request to other units. The Early College Program has been piloted for two years at the Effie Kokrine Charter School (EKCS) with multiple partners. The

## UAF FY11 Budget Request

majority of classes were culturally infused and courses were offered at TVC and IAC, and some students took courses at the main UAF campus. The EKCS students are doing well and enrollment is up at the charter school. The current funding comes from the Bill & Malinda Gates Foundation. This foundation is funding Early Colleges across the country with start up funds. The EKCS received start up funds through the Antioch University which focuses on Alaska Native /American Indian students. The initiative targets students who are under-represented in higher education-students who have not had access to the academic preparation needed to meet college readiness standards, students for whom the cost of college is prohibitive, students of color, and English language learners. Most early college high schools are collaborations with two-year colleges. It is IAC's goal to integrate the Early College concept with one more school within our region in the coming year. It is being proposed that tuition be reduced for Early College students, similar to the Tech Prep tuition at \$25 per credit.

### Individual Technology Based Math and Summer Bridge Programs

(GF \$150.0, NGF \$40.0, Total \$190.0)

Across the UA system math courses are commonly "gateway" courses negatively impacting student retention and graduation. Providing additional support for expanding innovative instructional methods and faculty development is expected to improve student success. Each institution in the UA system supports innovative approaches to instruction to improve student learning and success. For example, new approaches to success in 100-level math (in addition to improvements to developmental math) have been implemented in a few classes based on individual technology-based instruction using ALEKS or MyMathLab software. Summer bridge programs help get students better prepared for their initial math class. Many entering students have not taken math in a year or two and need a refresher. Students taking advantage of summer bridge programs have been able to jump a course when starting their fall semester; this improves their progress toward degree and their retention.

### Student Achievement

#### Student Services Managers for Each of the Rural Campuses

(GF \$220.0)

This request is for staff positions to provide student support, academic and financial aid advising, and the foundation for a reliable, consistent student services program at each of the five rural campuses of CRCD, Bristol Bay, Chukchi, Interior-Aleutians, Kuskokwim, and Northwest. These positions have been grant funded, but cannot continue to be in their current form, because the focus of any new Title III grants must change. The need for long-term, state appropriation for campus-based student services directly supports the recommendations relating to student communication, advising, retention, support that were highlighted in the Chancellor's Student Services/Success Transition Team Report.

#### Honors Program and Undergraduate Research Enhancement

(GF \$200.0, NGF \$24.5, Total \$224.5)

An enhanced Honors program will help UAF recruit and retain students with outstanding academic performance. From its inception in 1983 through 2007, UAF's Honors Program was administered by the College of Liberal Arts. Previous Provost Paul Reichardt then moved the administration of the program to the Assistant Provost for General Studies. The Program currently has 135 active students. Honors is currently supported through a 1/2-time 10 month faculty director, one full-time 10 month staff member, and adjunct faculty funding (\$10K). In FY 10 the 1/2-Director position funding will be lost, returned to CLA by prior agreement. With its current budget the program has difficulty offering honors courses and has little funding to offer student activities. \$200K is proposed to fund the director position full-time (including 1/4 time teaching), create 1 quarter time faculty appointment to offer additional course offerings and fund enhancements for travel, local activities, and commodities. An Honors retreat is planned for fall 2008 with a consultant from the National Collegiate Honors Council to guide curricular reform. We believe we can easily double the number of students involved in Honors by reforming the curriculum and enhancing the program. The full-time Director will be charged with promoting and coordinating student research opportunities and seeking external funding for Honors student activities, including research.

## UAF FY11 Budget Request

### Undergraduate Research Initiative

(GF \$200.0)

This request is to support for undergraduate research (xxx-498) and senior theses (xxx-499) or creative projects in the arts for undergraduate students across UAF, but particularly in units such as the College of Liberal Arts, School of Management, School of Education where other sources of support are very limited. Undergraduate research is a largely untapped opportunity except in the sciences, social sciences and engineering. With the increase in UA Scholars, and with the forthcoming changes in UAF Honors Program, the mantra that "UAF is Alaska's research university" must begin with incoming freshman and include enhanced opportunities for undergraduate research in all disciplines. Over 150 undergraduate UA scholars have declared majors in UAF liberal arts disciplines and there are currently over 30 students in the UAF honors program with liberal arts majors who will need to complete a senior thesis to be graduated with honors. These funds would be made available on a competitive basis to students in all disciplines, but since students have other opportunities for project funding in the sciences and engineering, we expect that most of the awards will be to students in other fields.

### Engineering

#### College of Engineering and Mines Core Instructor Support (Engineering Science)

(GF \$100.0, NGF \$46.8, Total \$146.8)

Fall 2007 enrollment data produced by the UA Statewide Office of Institutional Research indicated that the number of freshmen enrolling in CEM programs increased 95% compared to fall 2006. Current data indicate an additional increase of 25% in undergraduate applications and 70% in graduate applications for the fall 2008 semester. Recent enrollment increases have already begun to impact the general engineering science (ES) classes taught by the college. ES classes are not associated with individual departments. Rather, they typically serve a number of different degree programs in the college. A non-tenure track instructor is seen as an effective way to meet the demands of these lower level ES courses.

#### Mechanical Engineering Faculty in Alternative Energy

(GF \$120.0, NGF \$100.0, Total \$220.0)

One additional faculty position in Mechanical Engineering (with expertise in alternative energy ) is requested to meet the demands of increasing enrollment and research opportunities in energy. Recent enrollment data has shown a significant increase in mechanical engineering (the ME program is expected to have the largest group of entering freshmen in the college for fall 2008). These enrollment increases will tax faculty resources in mechanical engineering over the next few years as this new cohort of students progresses through the program.

#### Electrical/Computer Engineering Faculty to Support Computer Engineering Program

(GF \$120.0, NGF \$100.0, Total \$220.0)

CEM began offering a degree in Computer Engineering in the fall of 2005. Since that time the number of students in the Computer Engineering program has increased substantially, and is now well in excess of 25 students with further increases indicated for the fall of 2008. A new faculty position is now needed to meet the demands of increased enrollment in this program.

#### Engineering Student Success Lab

(GF \$75.0, NGF \$150.0, Total \$225.0)

The Engineering Tutoring Lab will provide academic support for mainly freshman and sophomore students. Successful upper division students will be hired to tutor the lower division students in a host of beginning engineering (and associated) courses. The freshman and sophomore years are when we fail to retain the majority of our non-continuing students.

## UAF FY11 Budget Request

### Petroleum Engineering Faculty (Proposed New Program in Chemical Engineering)

(GF \$120.0, NGF \$100.0, Total \$220.0)

Student enrollment in Petroleum Engineering grew 32% between 2005-06 and 2007-08 and we anticipate further enrollment growth this coming fall (current student registration trends are showing an increase of an additional 30% as compared to fall 2007 numbers for entering freshmen). In addition, we plan to begin offering some chemical engineering courses utilizing petroleum and mechanical engineering faculty members. These trends and plans are placing additional demands on the petroleum engineering faculty and we anticipate that one additional faculty member will be needed in this area.

### Teaching Assistant Support

(GF \$180.0, NGF \$20.0, Total \$200.0)

As enrollment continues to increase in CEM additional teaching assistant positions will be needed. Increasing enrollment in engineering will also impact core courses in other colleges such as CLA and CNSM. The requested budget increment will allow a modest expansion of teaching assistant support (six student positions in CEM and six student positions in core course areas) to help meet the demands of increased enrollment.

### Physics and Mathematics Support for Engineering Students

(GF \$105.0, NGF \$35.1, Total \$140.1)

The request is 1/2 tenure track faculty position in mathematics to teach upper division service courses and 1/2 tenure track faculty position in physics. The Department of Mathematics and Statistics is currently unable to offer all the courses that are in demand by programs across campus. The recent increase in the numbers of engineering majors makes this problem even more acute. Math sections in upper division courses such as differential equations already frequently have enrollments of about 50 students. In lower division courses, the demand is even more pronounced. It is important to maintain optimally sized courses in mathematics as retention in many mathematics courses is problematic. A comparison of faculty numbers at similarly sized institutions during the last departmental program review showed that we have fewer faculty per number of math students than other comparable institutions. For the Department of Physics, we are requesting faculty support that we can augment with college funds that will allow up to four courses of lower division physics courses per year to be taught. This support would provide funds for additional offerings of high demand physics courses required by a number of students across campus. Notably, PHYS 211-212 is an important course required by a number of majors including engineering. Demand has increased in recent years such that there are about 40+ students (mostly engineering majors) currently who take advantage of the 211-212 "trailer" sequence, which restarts the sequence in spring semester. We also have increased demand for PHYS 103-104 with a recent requirement that biology students take this sequence.

## Climate

### High-Resolution Localized Forecasts for Managers and Policymakers (SNAP)

(GF \$225.0, NGF \$700.0, Total \$925.0)

Provide Alaska's managers and policymakers timely access to research that shows how current changes may shape future conditions. The Scenarios Network for Alaska will develop reliable predictions that are based on the most current information available.

### Information on Climate Change to Inform Planning and Preparation (ACCAP - Alaska Center for Climate Assessment and Policy)

(GF \$150.0, NGF \$450.0, Total \$600.0)

Continue efforts to apply the understanding of climate projections to resolve site specific questions (i.e. provide information on long-term changes to help local planners, businesses and residents make informed decisions).

## UAF FY11 Budget Request

### Ecological Modeling: Responses of Biological Systems to Climate Change

(GF \$200.0, NGF \$650.0, Total \$850.0)

Collaborate with LTER and NEON programs to incorporate understanding of biological systems into climate predictions and impact analyses. Project future environmental responses based upon best understanding of behavior under different conditions, through monitoring of the changes in numbers or conditions of a particular ecosystem or population, we can develop the understanding needed to provide confidence in empirical or quantitative models of change.

### Biomedical Capacity

#### Joint UAF Public Health Laboratory Position in Virology

(GF \$75.3, NGF \$305.8, Total \$381.1)

This is the joint UAF/State of Alaska Public Health Laboratory position described during the planning for the new State Virology Laboratory on the UAF campus. This joint appointment is intended to foster UA and State of Alaska collaboration. Research and teaching will be in public health and/or of microbiological diagnostics, microbial genotypes, genomes, and genomics. Applications might include: 1) surveillance of existing, emerging, and re-emerging pathogens in people, animals, and environments in Alaska, 2) identification, characterization, and pathogenicity of new isolates, 3) development and validation of laboratory protocols for Alaska conditions, 4) changes in the prevalence of Alaska's disease pathogens in the face of climate change, 5) evaluation of vaccines and preventative health measures, and 6) safety of Alaskan subsistence and other foods.

#### Faculty Position in Virology and Infectious Disease

(GF \$100.4, NGF \$351.6, Total \$452.0)

This faculty member would build biomedical research in INBRE theme area of infectious disease. Potential research disciplines include pathogenesis, viral characterization, virus-host specificity, adaptations to vectors, epidemiology, or viral ecology in Alaskan environments. The applications could include: 1) changes in pathogens (zoonotic or vector-borne disease agents) that are correlated with changing climate, 2) viral prevalence and viability in Alaska field environments, 3) food-borne infections, 4) microbial metagenomics in the digestive tracts of Alaska wildlife and people, and 5) impacts of contaminants on digestive microfauna and microflora.

#### Faculty Position in Immunology

(GF \$100.4, NGF \$359.4, Total \$459.8)

This faculty position will build biomedical research in INBRE theme area of infectious disease. Research and teaching will be in basic and functional immunology and immune defenses against infection. The potential research and teaching disciplines could be at the level of organismal, cellular, or molecular immunology. Preference would be given to candidates who work on comparative immunology using animal models.

#### Veterinary Services Animal Health Technician

(GF \$45.0, NGF \$325.0, Total \$370.0)

A full-time Animal Health Technician is needed to accommodate maintenance of research and clinical support services, including but not limited to: prescription and controlled substances, surgery and anesthesia support services (including training program), clinical and research imaging, and medical/husbandry records, and help with clinical/research service laboratories in the BiRD building. This technician provides support services to maintain the animal care program, coordinates research and teaching use of the surgical suite and clinical pathology service lab, provides support for experimental protocols involving research animals, and helps train faculty, students, technicians, and staff in experimental methods, animal handling techniques, blood draw, biopsy, anesthesia, surgery, and analytical techniques. The individual will report to the attending veterinarian. This increment (along with #405) will complete transfer of Veterinary Services to the Center for Research Services to accommodate the campus-wide mandate of a research animal care program. This will correct the cost accounting error of previously

## UAF FY11 Budget Request

placing this position in a recharge center, satisfy the regulatory requirement for lines of authority, and eliminate the conflict of interest problem.

### **Veterinary Services Laboratory Technician**

(GF \$45.0, NGF \$325.0, Total \$370.0)

A full-time Veterinary Services Technician is needed to oversee diagnostic/research service laboratories in the BiRD building and adjacent UAF space in the State Virology Laboratory. This technician provides support services to maintain the animal care program, coordinates research and teaching use of necropsy suite and diagnostic service labs, and provides regulatory support including training in experimental methods and analytical techniques for faculty students, technicians, staff. The individual will report to the attending veterinarian. This increment (along with #405) will complete transfer of Veterinary Services to the Center for Research Services to accommodate the campus-wide mandate of a research animal care program. This will correct the cost accounting error of previously placing this position in a recharge center, satisfy the regulatory requirement for lines of authority, and eliminate the conflict of interest problem.

### **Advanced Indigenous Studies**

#### **Indigenous Studies PhD program & Alaska Native Knowledge Network**

(GF \$217.7, NGF \$75.0, Total \$292.7)

The requested funding will provide administrative and academic support of Masters and PhD candidates associated with the graduate areas of Indigenous Studies, Cross-Cultural Studies, Linguistics and related areas. The PhD program in Indigenous Studies, currently under review via the Governance process, will directly address UAF 2010 Strategic Plan by offering an advanced program of graduate study focusing on issues that are deeply rooted in Alaska's past and destined to be an integral part of Alaska's future. Students are already pursuing indigenous studies doctoral degrees through the Interdisciplinary Ph.D. program. The proposed Indigenous Studies Ph.D. is also interdisciplinary, bringing together faculty and students from the College of Liberal Arts (in areas including Cross-Cultural Studies, Linguistics, Alaska Native Studies, Political Science, and others), Education, Rural Development, and the Resilience and Adaptation Program.

### **Workforce Programs**

#### **IAC - Tribal Management**

(GF \$90.0, NGF \$20.0, Total \$110.0)

Tribal Management provides training in a number of high demand jobs in rural areas, including: Tribal administration, finance, Tribal justice and other areas of importance in rural Alaska. The program has graduated 38 students since its inception in 2003 and there are currently 20 students enrolled. The program is delivered by two faculty funded through grant programs. Funding for the program head is provided through Title III and this funding is scheduled to end in September 2009. The program has recently expanded to include Restorative Justice and this funding will be utilized to provide training and education in Restorative Justice and tribal court development. This training is designed to meet the growing educational demand for emerging rural judicial systems, creating qualified Tribal Court Judges, administrators, clerks and government officials. This request would stabilize the TM program by providing a GF funded, tenure track faculty/program head position. This request also includes funds for travel to reach various sites in Alaska, as well as supplies, audios, and other contractual needs for the program.

#### **IAC - Alaska Roads Scholar Program**

(GF \$90.0, NGF \$20.0, Total \$110.0)

The purpose of the Alaska Roads Scholar Program is to promote the delivery of transportation-related training to the existing and potential rural Alaska workforce. The transportation network in rural Alaska is truly multi-modal, and includes traditional air, road, and river/marine systems as well as non-recreational ATV and snowmachine trails, boardwalks/board roads, seasonal access routes, and pedestrian facilities. The transportation system provides a critical link to employment as well as to other village infrastructure

## UAF FY11 Budget Request

such as clinics, schools, Tribal offices and community buildings. This complex transportation network requires a trained workforce to act as Tribal or municipal program managers, as well as a skilled staff to construct, operate, and maintain village transportation facilities. The Alaska Roads Scholar program is creating an Occupational Endorsement modeled after the Rural Utilities Business Management Occupational Endorsement (currently in development in cooperation between the Interior-Aleutians Campus and the Cooperative Extension Service) that will provide opportunities for credit as well as CEUs for training. The OE courses are being developed through the Construction Trades Technology program and the Tribal Management program. The Alaska Roads Scholars Program will allow interested students to pursue certificates and degrees in Construction Trades Technology, Tribal Management and the Bachelor of Technology.

### **TVC - Law Enforcement Academy Base Funding**

(GF \$98.6, NGF \$64.3, Total \$162.9)

The Law Enforcement program was initially funded with start-up dollars in the amount of \$64,775 in FY01. From FY02-FY04 annual funding was in the amount of \$65,000 and was utilized to fund necessary equipment and the salary of the program faculty. In FY05 SB137 funding was reduced to \$35,000, which is insufficient for maintenance of the program. The TVC Law Enforcement Academy conducts basic police training for Interior Alaska, rural municipalities, and employers of security personnel. The training consists of students who are both current recruit employees of a law enforcement academy as well as students who are considering a career in law enforcement. All students in the program will be seeking Alaska Police Standards Certification, which will make them eligible for employment with any of the approximately 21 State Enforcement Agencies, or the 43 municipal police departments within the State of Alaska. In addition to these agencies, many private security companies give enhanced consideration to hiring a candidate who possesses an Alaska Police Standards Council certificate. We anticipate approval of Law Enforcement as a new “occupational endorsement” at UAF, recognizing the value to students of completing this academy and securing Alaska Police Standards certification.

### **TVC - Fairbanks Process Technology Expansion**

(GF \$125.0)

Funding would allow for UAF/TVC leasing of 4000 square feet of instructional and program space in the Fairbanks Pipeline Training Center (Vanhorn Road, Fairbanks). Leased space will meet essential instructional and program needs for the Process Technology, Instrumentation, and Safety/Health/Environmental Awareness programs. This funding will support a major university partnership with the Fairbanks Pipeline Training Center board of trustees and cooperating industry and labor partners. Lack of sufficient facilities places a stranglehold on our ability to meet high-growth, high-demand training opportunities. TVC is working to build a world-class Process Technology degree program. We have outstanding faculty with strong industry experience and excellent training opportunities through regional employers and oil field/mining/utility workplaces. Currently we have 150 majors in these programs but just over 3,000 square feet of space at Hutchison Institute of Technology. Funds will include required facilities modifications, utilities, and specialized supplies and equipment. This facility would be shared with Alaska Works Partnership and union apprenticeship programs. The State’s AGIA training plan calls for expanding the Alaskan workforce in oil and gas, mining, utilities, and construction fields—and to develop partnerships to leverage limited resources. DOLWD data show that industry sectors supported by our Process Tech and related programs will have the greatest demand in the next ten years.

## **Teacher Education**

### **Special Education Teacher Preparation**

(GF \$142.1, NGF \$27.2, Total \$169.3)

Special Education faculty are UAF’s highest priority in this area: one new tenure-track faculty position, and the portion of salary and benefits for one faculty position that was underfunded when UAA returned it to UAF. The requested positions will allow the UAF SoEd to fulfill the role assigned to it through a three-year UAA/UAS/UAF planning process to establish a statewide, collaborative UA Special Education endorsement/M.Ed. degree program. UAF will have responsibility for so-called “low incidence” areas.

## UAF FY11 Budget Request

Although these disabilities are less common than some, there is a marked shortage of qualified teachers for these children. UA currently offers no teacher preparation programs, endorsements, or degrees in low incidence areas of special education (e.g. autism, multiple disabilities, severe and profound developmental disabilities) which are being identified in Alaska's school children with increasing frequency. Deans Harris and Snyder, and the Teacher Preparation Planning Group, support this UAF SOE request. Urban as well as rural districts have shortages of special education teachers, and in particular FNSBSD identifies this as its greatest need.

### School of Education Program Access Through Student Teaching in Rural Districts

(GF \$85.0, NGF \$54.4, Total \$139.4)

The goal is to increase the number of UAF School of Education graduates who accept teaching positions in rural communities by increasing opportunities for them to complete their teaching internship in rural schools. The increment would support:

- Travel for direct faculty supervision of interns in high need schools outside Fairbanks.
- A pilot program to develop new supervision models to reduce dependence on travel in the future, e.g. videoconferencing, stipends for school district personnel to assume supervision roles.
- Staff/faculty instructional technology software/hardware updates to support an increased level of distance delivery of coursework and remote supervision of internships.

### Marine Advisory Program

#### Economic Sustainability, Application of University Research, and Response to Community Needs in Coastal Alaska: Outreach and Engagement by the Marine Advisory Program

(GF \$614.0)

The Marine Advisory Program (MAP), a unit in the School of Fisheries and Ocean Sciences, has been providing extension and educational services in rural, coastal Alaska for 45 years. The program serves as the extension arm of the Alaska Sea Grant College Program and thus has a statewide mission of providing life-long learning opportunities. Currently, 30% of MAP's positions are funded either by short term grants due to sunset in 2009 (located in Unalaska, Petersburg, Cordova, and Nome) or are vacant while waiting for funding (Bristol Bay) and there is no MAP agent in Kodiak. This request is to solidify funding for MAP faculty in these sites by moving them to regular UAF funded faculty positions.

### TIER 2 Requests

#### College Transitions

##### Alaska Summer Research Academy

(GF \$75.0)

ASRA is a flagship outreach program at UAF. It attracts and recruits high quality students from around the state and lower 48. Some students, who are bright enough to be accepted to universities such as MIT, Stanford and Yale, choose instead to attend UAF as a direct result of their experience at ASRA. ASRA targets under-represented populations (females are half of the students, rural students are strongly recruited.) The 2-week camp has grown over the years. The total cost to run ASRA is ~\$500,000. Tuition covers about 1/3 of that cost. CNSM salary, initiative funding, grants, and support from partnerships provides the rest. Long term goals for ASRA are to expand and share the model throughout the year. CNSM's preferred direction is a coherent outreach program during the year - more than just isolated events. These ideas include day camps, distance education, (with personal visits) or a second two week residential camp. To achieve these goals, and to ensure long-term viability for ASRA, we propose a three component approach, listed in order of priority.

1. \$100,000 for Director and Program Coordinator salary.

## UAF FY11 Budget Request

CNSM currently supports a half-time ASRA Director and half-time ASRA Program Coordinator, however the workload has substantially increased necessitating that these positions be full-time. Current full-time funding for both positions is guaranteed only through June 2009 (CNSM and Chancellor support), and there is a commitment from the UAF Chancellor for funds through the summer of 2010, but nothing for FY11 and beyond. Permanent half-time funding is sought for the ASRA Director and Program Coordinator positions, with the other half covered by CNSM. Without this salary support, ASRA Director and Program Coordinator would drop to half time, and the program could not be sustained.

2. \$45,000 in salary support for ASRA instructors.

ASRA pays up to \$1500 per instructor, plus benefits. Average module size is 8 students, and average module salary for two instructors is ~\$4500. Where possible ASRA seeks funding for instructor salaries from UAF departments and partners. In 2009 salary from outside sources covered about 30% of instructor salaries. Modules without instructor salary or other support lose money. Instructor salary is not high enough in some cases to attract high quality faculty. This level of funding would support instructors for 10 out of 16 modules.

3. \$130,000 Program expansion and enhancement.

Year round outreach efforts would include an ongoing weekly session modeled after two successful programs at MIT (SEED <http://mit.edu/seed/>, and "The Saturday Thing"). Money will go toward salaries, travel, and materials. The program would target under represented populations - girls in science and engineering, or rural students for example - in addition to the diverse population already served. A second session will be explored, as will distance delivery.

### Engineering Outreach to Middle and High School Students

(GF \$50.0)

Faculty and staff support for middle school and high school outreach (robotics programs and engineering academy) is requested. This budget item will allow some faculty release time to enable energetic faculty members to spend time guiding projects in the public schools, leveraging existing projects such as the Project Lead The Way Engineering Academy at Lathrop High School and ongoing robotics programs in various middle and high schools.

## Climate

### Climate Change Impacts on Transportation

(GF \$250.0, NGF \$700.0, Total \$950.0)

Most activities within the Department of Transportation and Public Facilities (DOTPF) are or will be impacted by climate change, most notably planning, design, engineering, construction, and maintenance & operations activities. New techniques for minimizing impacts of thawing roads or extending the life span of existing roads and infrastructure must be developed and evaluated.

## Biomedical Capacity

### Post-doctoral Support for Biomedical and Behavioral Health Research

(GF \$200.0, NGF \$800.0, Total \$1000.0)

Funds are requested to support post-doctoral researchers working in INBRE theme areas of infectious disease and/or toxicology. Active and continuing support for post-doctoral researchers is needed for a successful biomedical research program. Postdocs provide cutting-edge knowledge and help in providing connections between leading research programs internationally, promoting synergy leading to rapid progress.

## UAF FY11 Budget Request

### **Workforce Programs**

#### **IAC - Construction Trades Technology**

(GF \$100.0, NGF \$20.0, Total \$120.0)

The Construction Trades Technology (CTT) Certificate and A.A.S. prepares local rural residents for jobs created by tribal organization's rural capital projects. In 2006, regional housing authorities had a budget of 98 million dollars. The Denali Commission is planning to build 50 more rural clinics; 87 are currently under construction. I-AC has successfully piloted training and developed the degree program using grant funds. The program currently has two grant funded faculty. Funding for the program head is provided through Title III and HUD. Both grants are scheduled to end in September of 2009. Since 2005, I-AC has trained 310 students in the CTT field. 65 students have completed a CTT certificate and started on the CTT A.A.S. degree as of Spring 2008. This request would stabilize the CTT program by providing a GF funded, tenure track faculty/program head position for the CTT program. This request also includes money for travel to reach various sites in Alaska, as well as money for supplies, audios, and other contractual needs for the program.

#### **NWC - Bering Strait Workforce Enhancement**

(GF \$111.9, NGF \$20.1, Total \$132.0)

The purpose of the program is to meet the identified regional need for applied business-related training. NWC faculty and staff have held meetings in seven of our regional villages with Kawerak's Education, Employment, and Training Division to identify workforce development needs. All have identified the need for training in the applied business and management cluster, including office occupations, health care management, entrepreneurship (especially reindeer industry), and small business management, accounting, and marketing. A full-time faculty member who provides leadership, consultation, and instruction to regional communities and organizations is needed to organize needs and curriculum. For the past two semesters NWC has been providing basic, introductory training to 127 students in QuickBooks and Excel. It is anticipated that many more students will be served and that we will meet the specific employer demand of Kawerak, Inc., local Native Corporations, village city offices, and NSHC (health care provider) for trained administrative staff. Currently, NWC has partnered with regional businesses and corporations who have provided funding for faculty travel, and student tuition, books, and fees.

#### **KUC - ITS Faculty Position**

(GF \$65.6)

This position has been funded through an NSF-TCUP grant. The grant will end on May 31, 2009. KuC has not had an Applied Business instructor since 1999, but these types of courses are some of the most requested at KuC. Many available jobs in this region depend on skills acquired through the Applied Business program. KuC has offered ABUS courses intermittently throughout the years, but has been dependent on the availability of qualified adjuncts. Since the adjunct pool has fluctuated considerably, KuC has not been able to offer a consistent ABUS program. Several initiatives in the region and statewide require applied business acumen, such as the Alaska Federation of Natives Alaska Marketplace competition. KuC currently employs an Assistant Professor of Computer Applications, which could facilitate an A.A.S. ABUS degree with a concentration in Computer Applications. Course offerings by this faculty position can support several degree programs, including the Applied Accounting Technician certificate, the Applied Business Management, Applied Accounting and Tribal Management certificates and associate degrees, and the Financial Services Representative occupational endorsement.

#### **Applied Business**

(GF \$111.0)

The request is for an additional faculty member for the Applied Business program at TVC, which offers a cluster of courses in office occupations, small business management, accounting and marketing. Many of these courses, and the Applied Business AAS, are available to students statewide via distance delivery, as well as to Fairbanks classroom students. Applied Business is a High Demand Job Area and its graduates are employed in a wide variety of businesses and industries.

## UAF FY11 Budget Request

### Auto Technology

(GF \$90.0)

Auto Technology is a High Demand Job Area, and qualified auto repair technicians are in short supply in all areas of the state. This is a request for a second faculty member for the Tanana Valley Campus program. This program was recently certified by NATEF, the National Automotive Technicians Education Foundation, indicating that it meets exacting quality standards. Further this certification means that graduates are recognized by employers nationally. Enrollment in this program has more than doubled over the past three years.

### MAU Specific

#### UAF Graduate Student Success with a Focus on the Indigenous Studies Graduate Program

(GF \$117.6, NGF \$140.0, Total \$257.6)

This funding request will provide support for the interdisciplinary Indigenous Studies Ph.D. program and the UAF collaboration with the University of the Arctic. UAF delivers an interdisciplinary Ph.D. program that allows an individual student to meet his/her goals to support their career plan, and an interdisciplinary Indigenous Studies Ph.D. proposal is under review. There is a call to increase the number of interdisciplinary Ph.D.s who can integrate cultural and societal perspectives with the technological and discipline oriented science and business world. This request uses a three-pronged strategy to address this. (1) Increase the financial support to Alaska Native and under represented minority students by using the three graduate stipends and six summer tuition support awards; this funding includes the required match to the recent major Mellon Foundation gift; (2) Enhance recruiting of students to the interdisciplinary Ph.D. programs at UAF; (3) Partner in a leadership role with the other Arctic Universities to increase indigenous participation in Ph.D. programs. Also, the increment will lower barriers to successful graduation by providing focused and quality staff support for students and U Arctic activities. The successful students will be future leaders for Alaska.

#### Alaska Volcano Observatory: Monitoring and Prediction of Eruptions and Ash Plume Movements

(GF \$200.0)

The Alaska Volcano Observatory (AVO) is a joint program of the United States Geological Survey (USGS), the Geophysical Institute of the University of Alaska Fairbanks (UAFGI), and the State of Alaska Division of Geological and Geophysical Surveys (ADGGS). However, USGS support has recently been dramatically cut, to a level that is only 20% of that in previous years. This is despite the activity of Mt. Redoubt, whose eruptions have resulted in major disruptions to air travel through Anchorage over the past several months. As described on their website, AVO has three primary objectives:

- To conduct monitoring and other scientific investigations in order to assess the nature, timing, and likelihood of volcanic activity;
- To assess volcanic hazards associated with anticipated activity, including kinds of events, their effects, and areas at risk; and
- To provide timely and accurate information on volcanic hazards, and warnings of impending dangerous activity, to local, state, and federal officials and the public.

These are obviously critical needs for the State of Alaska, given that more than 50 of the state's volcanoes have been active since historical records have been kept (since the Russian and other European explorations commencing around 1760). More than three-quarters of U.S. volcanoes that have erupted in the last two hundred years are located in Alaska (<http://www.avo.alaska.edu/volcanoes/about.php>).

## UAF FY11 Budget Request

### **Energy and Cooperative Extension Service**

#### **Critical Faculty Leaders on Geothermal Technologies and Exploration, Renewable Power, and Alternative Fuels**

(GF \$400.0, NGF \$1,200.0, Total \$1,600.0)

New research faculty who will be at the cutting edge of the energy field. The areas of expertise that need basic capacity building are geothermal technologies and exploration, renewable power (e.g., wind, solar, bio- and hydrokinetic), power transmission and alternative fuels. While this funding will be administered by ACEP, the faculty will be housed in institutes across the University. The director of ACEP will have the discretion to negotiate with institute directors to determine where the expertise is needed, for how long, and in what type of faculty position.

### **Student Achievement**

#### **Freshman Seminars and Supplemental Instruction**

(GF \$100.0)

Freshman seminars are proposed to help new students connect to faculty and to other students in their areas of interest. Such seminars have been shown to increase student retention and graduation and are considered foundational for learning communities. A competitive process would be used to select faculty to teach freshmen seminars and faculty would be offered a small incentive to develop and offer seminars similar to the very successful Ohio State University program. Supplemental Instruction (SI) employs successful course completers to provide learning support to students taking a class for the first time. SI has been piloted in several Core courses with low success rates, and has improved student success (course completion with C or better grade) significantly.

#### **Veterans Financial Aid/GI Bill Advisor**

(GF \$80.0)

SES is requesting permanent funding for a Veterans Affairs/GI Bill Advisor. This position is currently term-funded with one-time funds and provides information regarding the use of veteran benefits, including the GI Bill, and assists with the completion of required forms to active duty and veteran students. In addition, this position provides correspondence to incoming students regarding VA benefit program guidelines, current catalog schedule and semester updates to the State Approving Agency and performs degree audits for students to determine eligibility of courses under UAF catalog as well as VA educational benefits programs. This position also facilitates and creates outreach and publicity for veteran students and services. The Veterans Affairs/GI Bill Advisor also researches grant and scholarship opportunities both locally and nationally for veteran students *and/or* campus programs and provides that information to the recipients. Lastly, this position serves as a liaison between UAF and the VA Regional Office for students utilizing VA education benefits. In addition, this position serves as the initial point of contact with the Vocational Rehabilitation Office and provides end-of-semester grade reports for their benefit recipients. Over 10% of UAF's full time students receive Veteran benefits of some type. Therefore, this position is critical when trying to serve the entire diverse student body at UAF.

#### **Math Intensive for Rural Students**

(GF \$60.0)

CRCD is committed to providing quality education for rural place-committed students that allows them to obtain their degrees from their home communities. Mathematics is a significant gate-keeper for degree attainment by rural students. The purpose of the Math Intensive Tutoring and Instruction program is to build on CRCD's success in delivering mathematics (DEVN and MATH) classes to rural students by distance. The program will bring rural distance students taking mathematics classes into CRCD rural campus hubs (Bethel, Dillingham, Fairbanks, Kotzebue, and Nome) for intensive one-week tutoring and instruction sessions. These intensives have been successfully piloted using federal grant funds. The mathematics intensives were piloted at CRCD by the Bristol Bay and Interior-Aleutians Campus for the NSF funded Hutlee Project (2001-2006) and continues to be used in other grant funded projects such as the

## UAF FY11 Budget Request

DOE/ANE funded Reach to Teach Program. Currently only students funded under a given federal program are able to attend these intensives creating unequal access and advancement for students taking the same courses. These funds would allow all rural students taking these classes to attend math intensives.

### Addressing Gap in Teacher Training

#### **Outreach and Retention Coordinator**

(GF \$100.0)

One FTE coordinator position for recruitment/retention efforts for Education programs.

#### **Financial Aid for Future Teachers**

(GF \$250.0)

The shortage of teachers in Alaska's rural communities, and in the specialty areas of special education and secondary math and science is acute. UAF is also requesting funds to increase rural teaching experience for student teachers and to re-initiate a Special Education MEd and licensure programs. However, a multifaceted approach is needed because not enough students are majoring in education and relatively few graduates are accepting positions or remaining in rural communities or in the special education field. Hence, funds are requested to start a student loan/incentive program for future teachers. If the teacher, once graduated, remains in a qualifying (rural or specialty) position for at least five years, then the loan would be forgiven.

## CAPITAL RESEARCH REQUESTS

### **Energy**

#### **ACEP-AEA Partnership for Energy Solutions**

FY11 (GF: \$10,000.0, Total: \$10,000.0)

Funding this project will allow the Alaska Center for Energy and Power (ACEP) to fill this partnership need by working in close coordination with Alaska Energy Authority (AEA) to serve as the State's research and development arm for testing emerging energy technologies. This will be accomplished in part, with test beds for assessment of technologies or products that could be deployed in Alaska in the short and mid-term (one to five years). The emphasis will be placed on technologies applicable to rural Alaska. By funding ACEP as AEA's partner in energy technology, Alaska has the opportunity to truly become a leader on the world stage in energy development in a manner that can provide stable, affordable energy throughout the state; while simultaneously developing economic opportunities for its residents and its industries. It is, by taking this type of balanced approach between forwardthinking policy, investment in cost-effective projects, and investment in research to 'peer over the horizon' at emerging technologies that will provide future energy solutions, that this goal can be realized. This will also provide for needed match funding for programs such as the Pilgrim Hot Springs Geothermal Assessment.

#### **Rural Power Project**

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this project will allow UA to help Rural Alaska with the energy crisis. This applies to heating, transportation, and electrical power. This initiative focuses on power generation. The funding will be used to support a researcher, staff and equipment/supplies/travel to be dedicated to the development of rural power options. Alaska Center for Energy and Power (ACEP) has already been asked to assist with rural power projects in hydrokinetic, geothermal, wind, and biomass energy for communities, schools, and corporations. As these relationships develop, funding is needed to build and support capacity.

## UAF FY11 Budget Request

### Transportation Fuels Alternatives

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this project will enable the Alaska Center for Energy and Power (ACEP) to focus on finding solutions to Alaska's energy needs. Alternative fuels for transportation is a significant concern for Alaskans. Transportation fuels are a specific need that cannot directly be satisfied with renewable sources. While much attention is currently being paid to reducing the cost of electricity and heating fuel, the cost of transportation fuel is increasing the cost of goods and services across the state. In a state that relies on transportation for many products to and from the state, a new approach to transportation fuels is needed.

### Sustainable Infrastructure/CCHRC Collaboration

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this project would allow for the sustainable infrastructure of the Cold Climate Housing Research Center (CCHRC) that has been on the UAF campus for two years. During that time, the Institute of Northern Engineering (INE) and CCHRC have sought to develop projects together. While some projects have been very fruitful, there is a great need for funding dedicated to developing this partnership. The funding would allow for faculty, students, and equipment to be dedicated to sustainable infrastructure. The bulk of this work would focus on housing, however, other infrastructure, such as commercial and industrial facilities will be investigated. This work will be part of the Alaska Center for Energy and Power (ACEP).

### Alaskan Coal

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this project will allow UA to investigate coal technologies that can allow Alaska to take advantage of its rich resources. Alaskan Coal is one of the most significant known sources of energy in the United States. Between twenty-five and fifty percent of US coal is in Alaska. UAF's niche for coal is not with the fundamental research in gasification or coal to liquids technologies, but in the application of these technologies. The project will address: coal preparation technology (such as ultra clean coal treatment), coal conversion technology (such as gasification) and coal product technologies (such as hydrogen from syngas used in fuel cells or conversion to liquids). Alaska's primary export may eventually shift from petroleum to coal as the petroleum resource diminishes. Funding this initiative will best position the state to build Alaska coal into its energy portfolio now, and in the future.

### Carbon Sequestration Options

FY11 (GF: \$1,125.0, Total: \$1,125.0)

Funding this project will allow the geological and geotechnical characterization of two suitable sites in Alaska for the permanent storage of carbon dioxide emissions from stationary power plants. The permanent sequestration is accomplished through the reaction of carbon dioxide with the major constituent minerals of mafic volcanic rocks (basalts) to form the calcium, magnesium and iron carbonate minerals calcite, dolomite, and siderite, respectively. Mafic volcanic rocks are formed at high temperatures (>1000 centigrade) and thus are unstable at the lower temperatures of the earth's surface and near surface. In the presence of carbon dioxide and water vapor, the constitute minerals naturally alter by the chemical weathering process to form more stable forms including the carbonates and clay minerals. Under natural conditions at the earth's surface, these reactions occur over time periods of hundreds of years; however at the temperature of power plant emissions and at depths of a few hundred meters these reactions occur nearly instantaneously. Furthermore, these reactions are exothermic and thus generate heat.

### Biomass Energy Program

FY11 (GF: \$4,600.0, Total: \$4,600.0)

Funding this project will answer five questions if biomass is to play a role in Alaska's energy future: 1) what is the amount of biomass resource available for use as an energy source, 2) what is the physical and chemical make-up of that biomass, 3) what fuel format is appropriate, 4) can technologies perform efficiently, and 5) are systems financially and environmentally sound. The successful use of biomass as a part of a sustainable energy supply in Alaska requires a combination of expertise, facilities and outreach to explore the ways Alaskan waste products can be best used in the production of heat, electricity, and

## UAF FY11 Budget Request

bioproducts. This approach must account for the diverse geographical and climatic regions of the state, the

technical aspects of fuel production, social and economic implications, and educational and outreach needs to ensure adoption of new technologies and sustainable use of natural resources and waste products. Biomass is efficient and will play an effective role in Alaska's energy future.

### **Climate**

#### **Responding to Emerging Requests from the Climate Change Subcabinet**

FY11 (GF: \$8,000.0, Total: \$8,000.0)

Funding this request will allow UA to investigate Alaska's rapidly changing communities and investigate better methods of adaptation. It is not yet fully understood how the climate drivers and receptors interact, but the existing capabilities and facilities have drawn researchers from across the globe to the University of Alaska to collaborate in developing this understanding. A list of research needs has been formulated by the Governor's Subcabinet committee on climate change and this program will be responsive to those directives. UA has considerable expertise and visibility in its research on climate change ranging from field experiments across the Arctic, to modeling future changes as well as quantifying shifts in society land and resource use patterns. This consortium will coordinate, strengthen, enhance and expand the research and outreach capacity of UA's climate change research endeavors with a specific purpose to address Alaskan needs with respect to a changing climate.

#### **Ocean Acidification**

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this request will enable UA to establish a project that will quantify the potential effects of ocean acidification in Alaskan marine waters. This emerging problem is not well understood in Alaskan waters, but has the potential of a very large impact on the marine ecosystems that support the extraordinary fishery resources. Through this initiative, the Institute of Marine Science (IMS) will conduct an assessment of the degree of acidification of Alaskan marine waters, especially the Bering Sea. The project will collect, compile, maintain, and make readily available a comprehensive database on the pH and its potential effect on biological resources within Alaska waters at the community, regional and statewide level. This project will investigate the potential impact of changing ocean acidification on the Bering Sea fisheries.

#### **Commercial Fisheries**

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this request will enable UA to characterize the impact that changing climate is having upon Alaskan salmon and other commercial species in Alaskan waters. Through this initiative, the UAF School of Fisheries and Ocean Sciences - Fisheries Division will conduct an assessment of the impact that changing climate is having upon Alaskan salmon and other commercial species in Alaskan waters. The project will collect, compile, maintain, and make readily available a comprehensive database on the findings and their potential effect on fisheries resources within Alaska waters at the community, regional and statewide level. This project will investigate the extent that Climate change is being documented as a factor in changing distribution patterns and ranges, in periods of the runs, and in the species mix harvested as catch and bycatch. For example, the pollock fishing fleet vessels are finding it necessary to travel farther north each season for their catch. This increases fuel costs and presents more hazardous weather and sea conditions.

#### **Improving Sea Ice Forecasts (Including Equipment)**

FY11 (GF: \$1,500.0, Total: \$1,500.0)

Funding this project will improve reliability of sea-ice projections (time scales of seasonal to 10's to 100's of years). The purchase of a state-of-the-art electromagnetic sensor to measure thickness from aircraft will provide data in near real-time to initialize sea-ice forecasts and validate long-term projections. Acquisition of this sensor will help us leverage additional funds from federal agencies and the private sector. The

## UAF FY11 Budget Request

inadequacy of presently available information on future sea-ice conditions has recently been apparent in the background information available to agencies involved in endangered species listings. The wide variance among climate model projections of future sea-ice variations calls for a coordinated program of observations and modeling to quantify the oceanic and atmospheric drivers of sea-ice variations, to more precisely

incorporate the driving mechanisms into sea-ice prediction systems, and to use observational information to enhance the ice-ocean modules used in global climate models.

### Permafrost Dynamics

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding for this project will address long-term infrastructure fidelity and water resources availability as influenced by changing permafrost conditions and atmospheric circulation. Funding would build capacity by which permafrost science, engineering, economics, and related fields are organized at the University of Alaska in a way that would bridge basic research and applications to meet user needs in Alaska and the broader Arctic. This end-to-end capability, encompassing basic permafrost research, engineering, and the social sciences, would enable the University of Alaska to assume world leadership in the planning and adaptation to changing environmental conditions in the North. Climate change and coastal erosion will affect UAF's infrastructure situated in places where flooding, erosion, and permafrost damage are most acute. This will include accelerated degradation of structures, roads, runways, and water-sewer systems.

### Improving Weather Predictions

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this project will improve weather predictions utilizing the Weather Research and Forecasting (WRF) computational model for Alaska. This project will enhance the capabilities and extend existing applications of WRF to allow for more forecast products to be applied to climate systems in the Alaska region. These climate systems include aviation conditions in remote and urban parts of the state, marine surface state conditions, occurrence and degree of temperature inversions, and occurrence (location and height) of wildfire smoke. WRF is the dominant U.S. weather forecast model used by National Oceanic and Atmospheric Administration (NOAA), state agencies, and commercial forecasters. However, the WRF model has not yet been fully developed or well tuned to Alaskan conditions such as long-duration snow cover, ocean ice influences, and extended periods of light and darkness that are not found in the lower 48. Better prediction of weather phenomena will have distinct economic impact on industries dependent on weather, such as: logistical support for resource extraction; air transportation of people, services and goods; fisheries and seagoing navigation; and tourism.

### Coastal Erosion, Inundation

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding for this project will address the coastal degradation that is the paramount near-term climate impact in the state. In two recent reports to the state – “Recommendations Report to the Governor's Subcabinet on Climate Change” and the Final Report of the Alaska Climate Impact Assessment Commission – calls for immediate action to mitigate coastal impacts were made. At this point in time the detailed information about frequencies and magnitudes of storms, waves, and inundation events – upon which response plans are developed and engineering structures designed – is simply not available. An understanding of the coastal processes driving of erosion and inundation is less mature compared to terrestrial, oceanographic, and/or atmospheric studies because, at the coast, these all must be considered together. Ice affected areas are even less understood yet are far more complex. Improved understanding requires a firm basis of observational data.

### Climate Data Management

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this project will enable UA to develop a database that will link to research in energy security, food and fiber security, and clean and reliable water supplies to climate change data and the ability to provide compiled data sets of driving data for modeling specific system components. These data sets will be used to

## UAF FY11 Budget Request

develop down-scaling algorithms to obtain climate projections tailored to the needs of users in specific locations (river discharge, soil wetness, snow loads, timing of freeze-up and break-up, sea level, and wave height, etc.). The Alaska Climate Impact Assessment Commission has identified a need to better communicate, manage, coordinate, and disseminate the aggregation of research projects among institutions in Alaska. This central data inventory/resource would be beneficial to efficient community planning and land and infrastructure management. This program would establish linkages among existing data archives in Alaska and elsewhere to enable analyses of environmental and social responses to a wide array of climate drivers.

### Alaska Monitoring and Response Capability

FY11 (GF: \$4,000.0, Total: \$4,000.0);

Funding this request will improve our ability to detect, mitigate and understand changes over Alaskan lands and waters through continual acquisition of high-resolution satellite imagery. The approach is to operate a receiving station to acquire imagery from SPOT 4 & 5 instruments as they pass over Alaskan territories. UAF will have complete control over these steerable instruments and will capture every image acquired while over Alaska and its territorial waters. This capability provides a low-cost, effective means of mapping Alaska to detect and understand changes associated with climate and development; complete statewide coverage at a spatial resolution of 2.5 meters per pixel would take only three years. In addition, the direct downlink capability of this station (which transmits imagery immediately as it is being acquired), coupled with the frequent overpasses of these satellite instruments allow for effective response to time-critical events such as wildfires, floods, and other natural disasters, as well as for search and rescue, and enforcement issues. This request cover all instrument costs, license uplifts for all non-DOD purposes, and operating costs for six years of operation.

### Natural Hazards Seismic Monitoring

FY11 (GF: \$1,000.0, Total: \$1,000.0)

Funding this request will allow UA to address the lack of natural hazards monitoring in the state. Alaska is seismically and volcanically active with attendant risks of injury, death and destruction due to earthquakes, tsunamis, and volcanoes. Since 1988, with the inception of the State Seismology Laboratory and the Alaska Earthquake Information Center at the Geophysical Institute (GI), and with a federally funded partnership with the US Geological Survey (USGS), many of the most seismically active areas have been instrumented. Typically 50 new earthquakes are added to the state catalog each day. For each event over magnitude 3.5 near Alaskan cities, a shake map is prepared which contours areas of strong seismic disturbance for use, if emergency action is required. With a new partnership with the National Oceanic and Atmospheric administration, this has been extended to include tsunami information and evaluations.