

2011 Impact Report

Louis Stokes Alliances for Minority Participation (LSAMP)

The Alaska Alliance

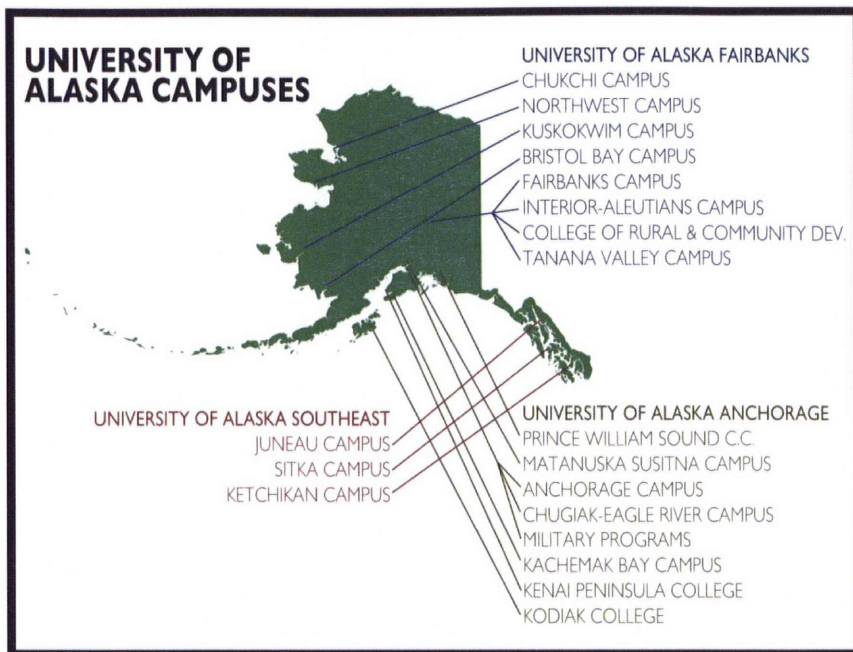


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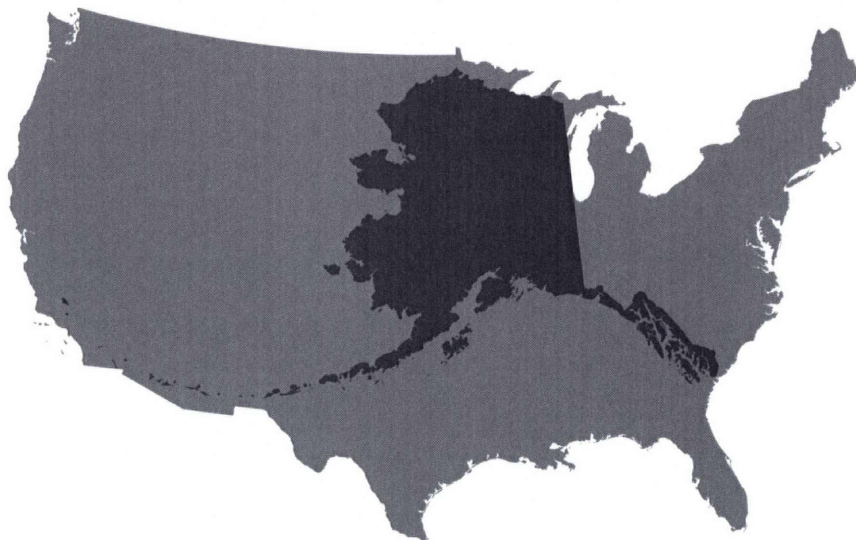
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The Alaska Alliance setting

The University of Alaska Statewide System consists of 3 separately accredited institutions. These are the University of Alaska Anchorage, University of Alaska Fairbanks, and University of Alaska Southeast (Juneau). Each institution includes separate community campuses. There are 19 campuses total. We do not call them community colleges here. We do not have problems with matriculation because we are all the same University. System-wide there are 33,000 full- and part-time students enrolled, studying among 500 unique degree, certificate or endorsement programs.



Alaska is a huge place. We have very limited road infrastructure and rely upon air travel to get to the bulk of the communities in the state. The people living outside of the metropolitan hubs of Anchorage, Fairbanks, and Juneau rely heavily upon fish and game to subsist. We fly or take the ferry to our capital city of Juneau.



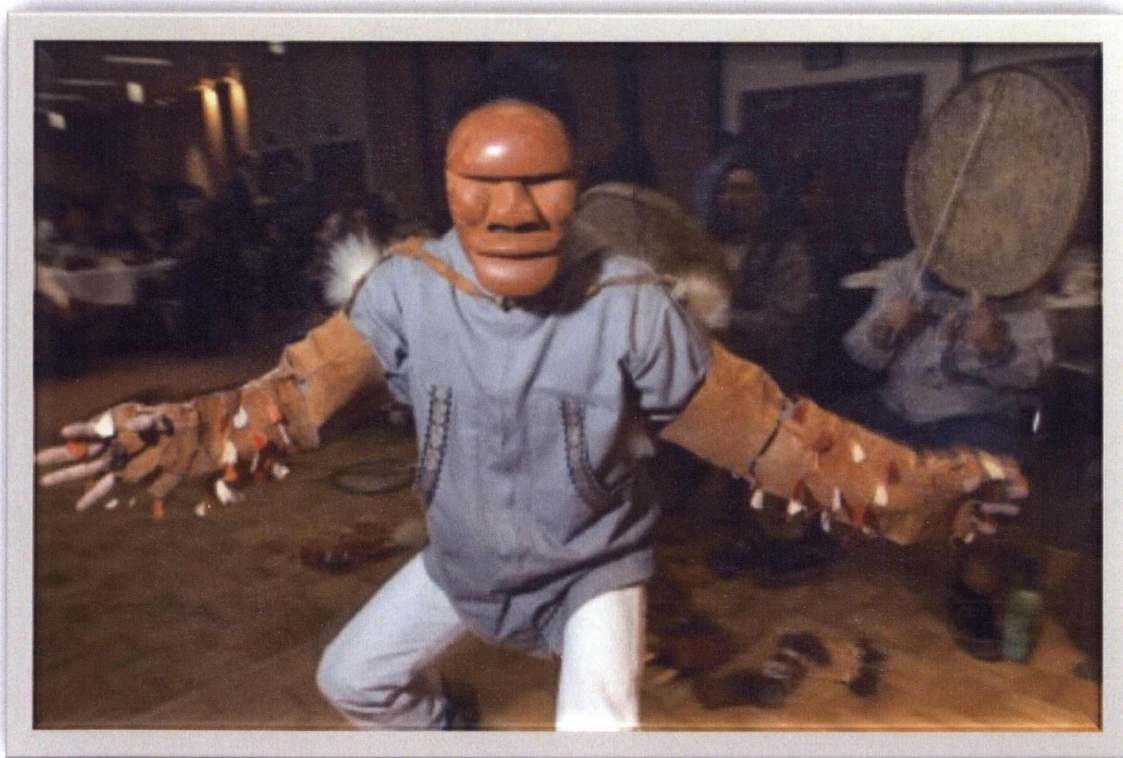
Alaska rural communities face many unique challenges, including challenges to development and economic self-sufficiency; geography and climate; isolation; unemployment; high cost and low standards of living; and infrastructure issues.

Most rural Alaska schools have fewer than 100 K-12 students. Many students never receive preschool education. Since the schools are geographically isolated, quality teachers are difficult to find and retain. Rural Alaskan villages have some of the worst literacy rates in the nation. Alaska Native students are less likely to pass standard tests than any other demographic, and Alaska Native students are more likely to drop out of school than any other demographic.

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Executive Summary

The University of Alaska Anchorage (UAA) was awarded its first LSAMP grant in Fall 2001. At that time, there were 233 minority students engaged in BS STEM degree programs statewide. Most students would show up for Freshman year chronically underprepared. Nine minority students graduated during our first academic year of LSAMP involvement. Currently, we work with over 800+ students all across Alaska through a suite of STEM focused academic programs beginning in 6th grade and continuing all the way through a PhD. Approximately 400 of these students are in grades 6 through 12, approximately 600 of these students are enrolled in STEM BS degree programs at the University of Alaska, and there are 21 graduate students. Since then, we have 397 minority STEM BS graduates. The success of the LSAMP students has led to partnerships that have leveraged LSAMP funding 8.7 times to support our programs. A portion of this includes \$6.5 million for a 14,000 square foot building to house LSAMP on the campus at the University of Alaska Anchorage and \$4.4 million for an endowed chair so that minority students will have a faculty advocate in perpetuity. LSAMP PI Dr. Herb Schroeder has been honored with the *Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM)*, the National Action Council for Minorities in Engineering (NACME) *Reginald Jones Founders Award*, and the Alaska Federation of Natives (AFN) *Denali Award*, the top award bestowed upon a non-Native by the Federation. The longitudinal model we have developed is being replicated at 12 higher education institutions in 9 states.



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The Challenge

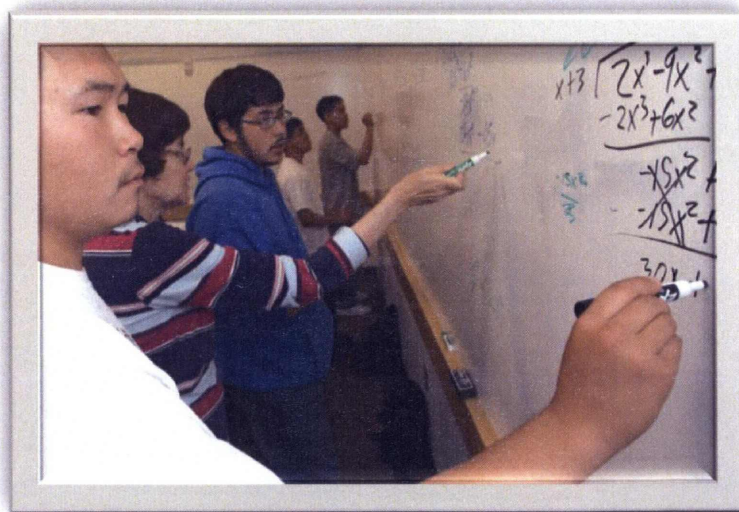
Dr. Schroeder started working with minority students in 1995. It was quickly discovered that the minority students who were arriving at the University were very under prepared for college level math and science. He traveled to the schools to investigate and was shocked to find that most of the teachers and administrators in the K-12 system did not believe that minority students could ever have a career in engineering or science. They believed that the students did not have the intellectual capacity to complete chemistry, physics, and trigonometry in high school. In nearly all of the schools where there were high populations of minority students those courses were not even offered. The students had received the message and had learned to believe it.

The situation at the University was similar. Nearly all minority students who arrived at the University had taken little science and their math was at Algebra 1 or lower. In 1995 as the program was starting up, it had received a \$100,000 donation for scholarships from a corporate partner. The Dean of Engineering insisted that the money be returned to the donor rather than dumb down the school to accommodate minority students. Back then, one of the University's students who had been attending for some time and had earned 150 credits that could not be combined into a degree was asked if she ever considered a career in engineering or science. She replied, "I thought that was for smart people." That woman has since earned a MS in Science Management.

This presented a formidable problem. The beliefs around the inadequacies of minority students are deeply rooted in the majority population and difficult to change. At the University we had to find a way for Native students to survive and then excel. Before they arrived at the University, we searched for a solution where we could connect directly with the K-12 students. It had to result in the students wanting to complete chemistry, physics, and trigonometry in high school.

Rising to the Challenge

Our program has evolved into is a longitudinal model that works with students from the time they are in middle school all the way through to the PhD. LSAMP supports university students enrolled in STEM BS degrees. Other partners to our effort support the pre-college and graduate school components. LSAMP increases university recruitment and retention rates through hands-on middle and high school outreach initiatives, rigorous summer bridging programs, focused academic learning communities, organized student cohorts, networks of peer and professional mentors, community-based learning, professional internships, and undergraduate and graduate research projects. Our focus is on providing inspiration, guidance, and opportunity for minority students.



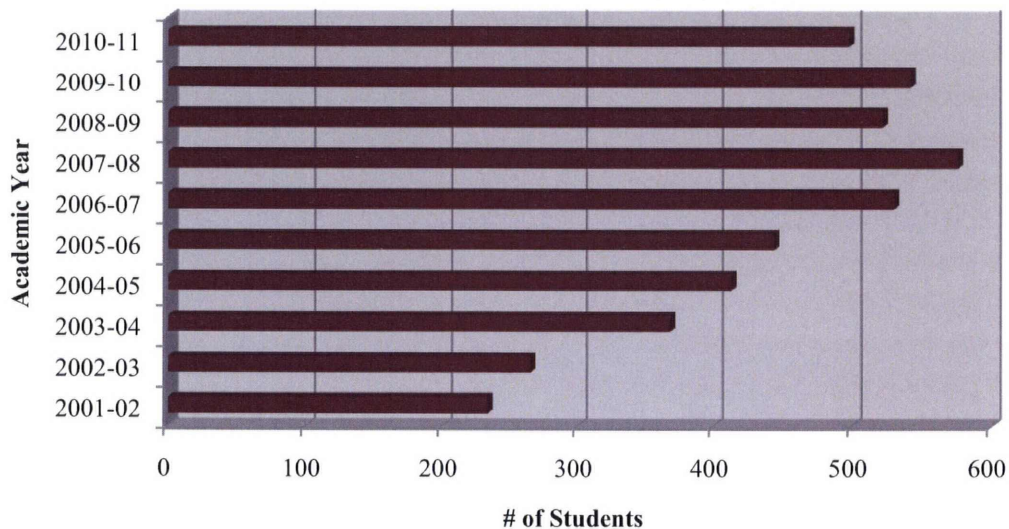
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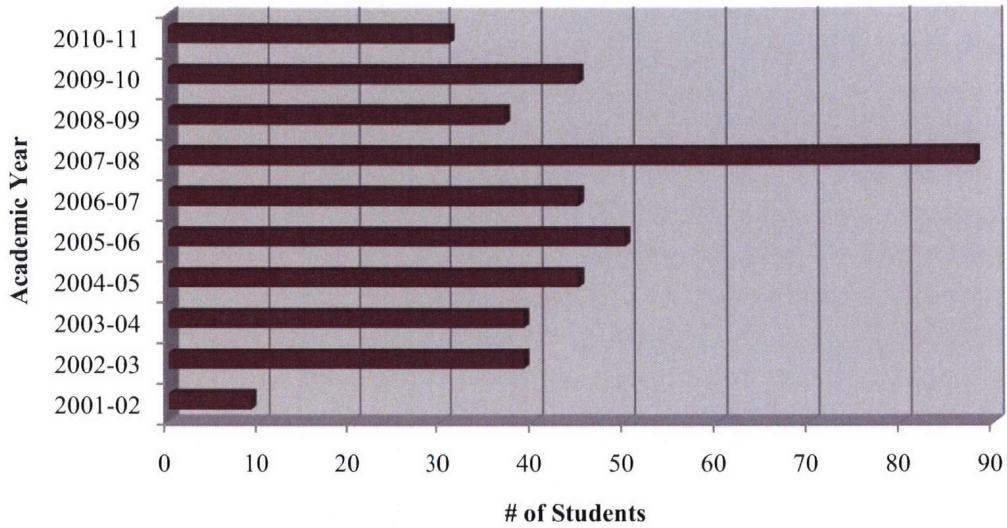


UREP Minority Enrollments

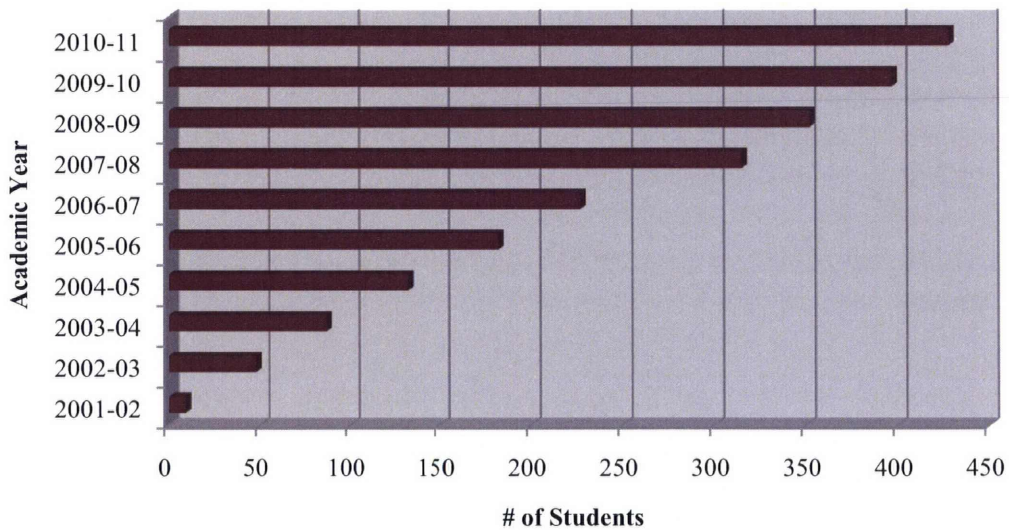


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UREP Minority Degrees (per year)



UREP Minority Degrees (total)



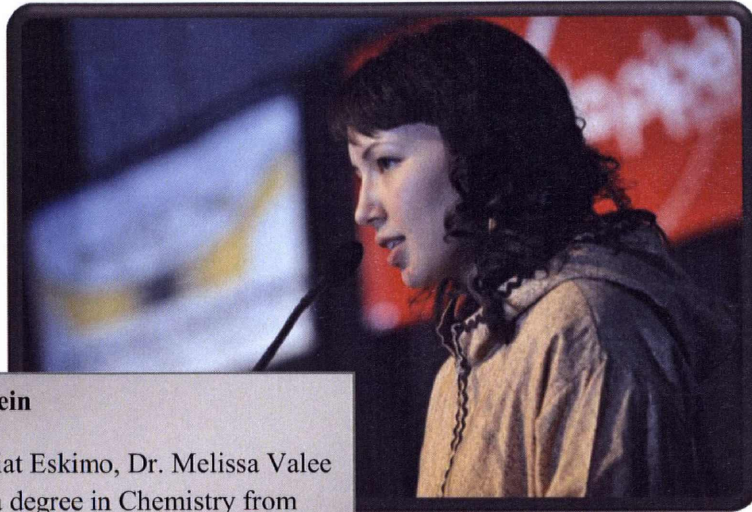
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Partner Organizations & Agencies

- ABR, Inc. - Environmental Research & Services
- Alaska Department of Fish and Game (ADF&G)
- Alaska Federation of Natives (AFN)
- Alaska Interstate Construction LLC (AIC)
- Alaska Native Tribal Health Consortium (ANTHC) – Division of Environmental Health and Engineering (DEHE)
- Alfred P. Sloan Foundation
- Alyeska Pipeline Service Company (APSC)
- Anchorage Water & Wastewater Utility (AWWU)
- Anonymous
- ANSEP Alumni
- Arctic Slope Regional Corporation (ASRC) - Energy Services (AES)
- Arctic-Yukon Kuskokwim Sustainable Salmon Initiative (AYK SSI)
- AT&T
- BP Exploration (Alaska), Inc.
- Bristol Bay Native Association (BBNA)
- Bristol Environmental and Engineering Services Corporation
- Bureau of Land Management (BLM)
- CH2M Hill
- Chevron
- Cook Inlet Region Incorporated (CIRI)
- Cook Inlet Tribal Council, Inc. (CITC)
- ConocoPhillips
- Denali Commission
- ExxonMobil Production
- First Alaskans Institute
- Ford Foundation
- Hawk Consultants LLC
- INBRE: Idea Networks of Biomedical Research Excellence
- National Institute of Health
- JL Properties, Inc.
- Jonathan Rubini and Suzanne La Pierre
- Kapiolani Community College (KCC)
- Kuskokwim Community College (KuC)
- Kuskokwim Native Association (KNA)
- Leonard and Tannie Hyde
- Microsoft
- NANA Development
- NANA Dowl HKM
- NANA Management Services (NMS)
- NANA WorleyParsons
- NASA Jet Propulsion Laboratory (JPL)
- National Action Council for Minorities in Engineering, Inc. (NACME)
- National Fish and Wildlife Foundation (NFWF)
- National Science Foundation (NSF)
- National Oceanic and Atmospheric Administration (NOAA)
- Northern Dynasty
- Norton Sound Economic Development Corporation (NSEDC)
- Peak Oilfield Services Co.
- Pebble Partnership
- Rasmuson Foundation
- Red Dog Operations Alaska
- SAIC
- Schlumberger
- Shell Exploration & Production
- Siemens Building Technologies
- SKW, Eskimos Inc.
- South Dakota School of Mines and Technology
- Summit Consulting Services, Inc.
- Teck
- The Nathan Cummings Foundation
- Udelhoven Oilfield System Services Inc.
- U.S. Army Corps of Engineers, Engineer Research & Development Center, Cold Regions Research and Engineering Laboratory (ERDC-CRREL)
- U.S. Department of Commerce - Economic Development Administration
- U.S. Department of Education
- U.S. Fish & Wildlife Service (USF&WS)
- U.S. Forestry Service (USFS)
- U.S. Geological Survey (USGS)
- University of Alaska (UA)
- University of Alaska Anchorage (UAA)
- University of Alaska Fairbanks (UAF)
- University of Arizona
- University of Colorado at Boulder
- University of Hawai'i Manoa
- University of Idaho
- University of Montana
- University of North Dakota
- University of Washington
- USKH
- Wells Fargo
- Yukon Kuskokwim Health Consortium (YKHC)

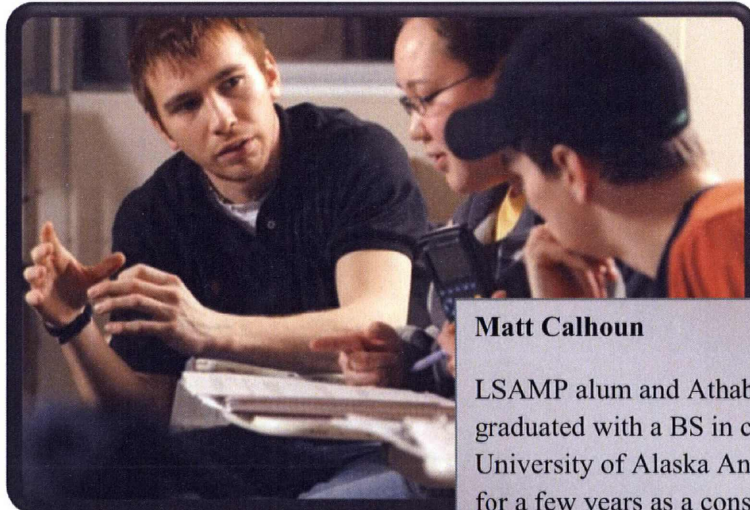
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Alumni & Student Profiles



Dr. Melissa Valee-Schein

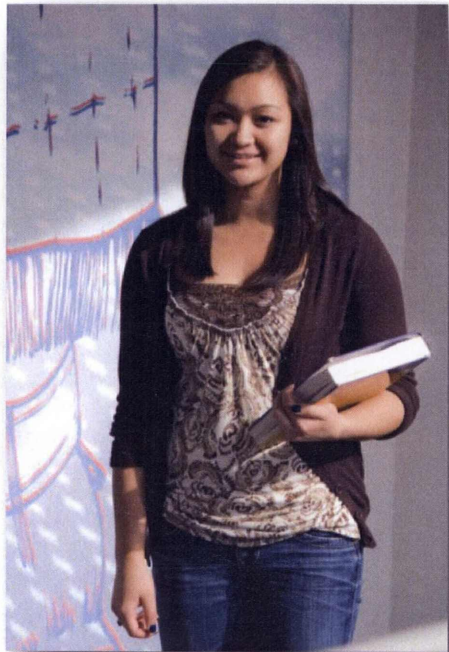
LSAMP alum and Inupiat Eskimo, Dr. Melissa Valee Schein graduated with a degree in Chemistry from the University of Alaska Anchorage in 2003. She was accepted to the University of Washington Medical School and graduated with her MD in 2006. Today Dr. Schein works at the Alaska Native Medical Center as a family practice physician.



Matt Calhoun

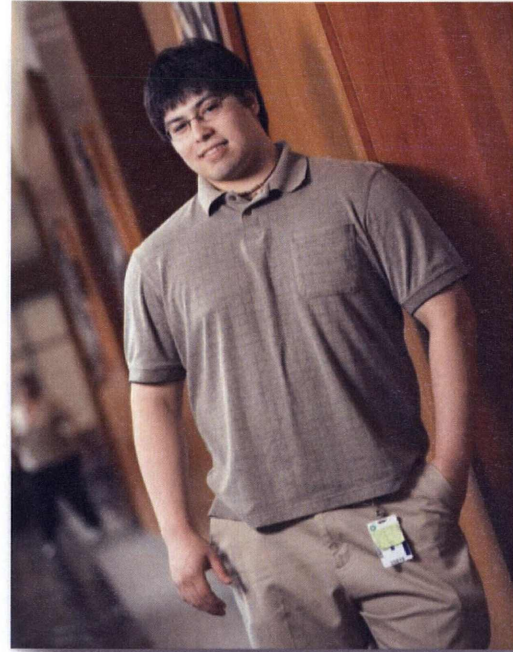
LSAMP alum and Athabascan Indian Matt Calhoun graduated with a BS in civil engineering from the University of Alaska Anchorage in 2002. He worked for a few years as a construction engineer and then returned to UAA to assist with the management of LSAMP. He enrolled in graduate school at the University of Colorado Boulder and graduated with a MS in civil engineering in 2009. He will graduate from CU Boulder in May 2012 with a PhD in civil engineering.

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Concepcion Melovidov

I am Unangax from St. Paul Island, Alaska. I am currently pursuing my BS degree in Biology at the University of Alaska. For my internship/research project, I worked at the UAA Center for Addressing Health Disparities through Research and Education (CAHDRE). I assisted in conducting the Copper River Regional Health Network Survey. This included 305 surveys from 19 communities around the Copper River area. Information gathered from this survey will be used to better address health disparities in the Copper River area.



Kenneth Wolkoff

I am Alutiiq from Kodiak Island, Alaska. I am currently pursuing my degree in Mechanical Engineering at the University of Alaska. During my internship I worked at British Petroleum (BP) in Anchorage, AK. I worked on spacing wells in the Greater Prudhoe Bay area for fits to the drilling rig Doyon-141. This work helps ensure that we minimize the area impacted by the drilling operations.

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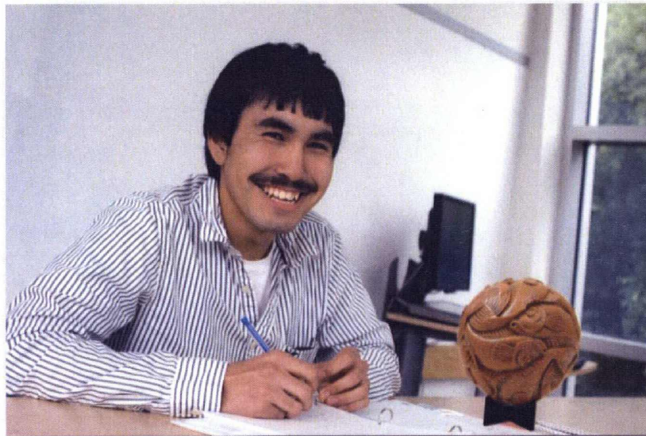
Malorie Johnson

I am an Inupiat Native from Unalakleet, Alaska. I am currently pursuing my Biology degree at the University of Alaska. During my internship/research project I worked for the Bureau of Land Management (BLM). I traveled to a remote field site to conduct research on salmon escapement for the sustainability of future populations. We used a fish weir to collect the samples including otoliths, scales, gender, length and weight. Data for other species such as whitefish was also collected. The data gathered from these studies are used to better understand and regulate Alaska's natural resources.



Henry Horner, Jr.

I am Inupiat from the village of Kobuk, Alaska. I am currently pursuing my Civil Engineering degree at the University of Alaska. During my internship I worked at DOWL-HKM. I worked on different types of projects specializing in various types of engineering including: transportation, water and sewer, and structural. This experience has given me a well rounded understanding of transportation and utilities projects in Alaska which I can now use to better shape my future plans as an engineer.



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Jasmin George

I'm Yupik and Inupiaq from Wales, Alaska, located on the Seward Peninsula. I am currently pursuing my degree in Biology at the University of Alaska. During my internship/research project I worked for the University of Alaska's Department of Health Sciences. My project involved research assistance on wastewater treatment within the Anchorage Water and Wastewater Utility (AWWU). This work will be used in a proposal to fund research on Anchorage's wastewater treatment operations.



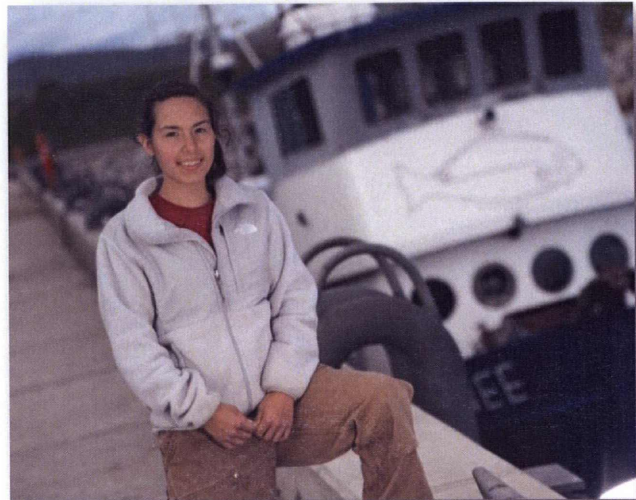
Keith Solofa

I am of Samoan and Alaska Native decent. I am currently pursuing my Engineering degree at the University of Alaska. During my internship/research project I worked for the US Forest Service in Petersburg, Alaska. I worked on the Road Condition Services (RCS) project. I conducted field surveys involving road-stream crossings and gathered measurement data of the road, culverts and streams at each crossing. We evaluated the system for fish presence and fish passage to ensure future escapement.

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Cassandra McAlpine

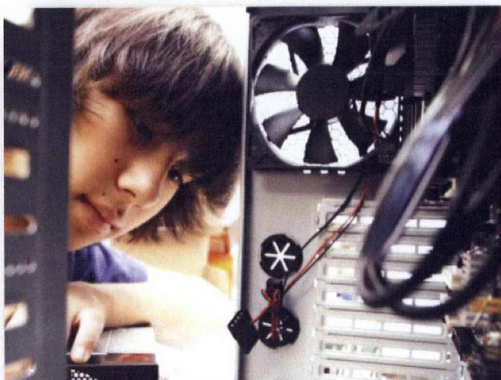
I am Athabascan from Anchorage, Alaska. I am currently pursuing my degree in Biology at the University of Alaska. During my internship/research project I worked for the Alaska Department of Fish and Game (ADF&G) in Nome, Alaska. I conducted research on various projects including freshwater and anadromous fishes, Bering Sea crab and migratory birds. This included working at remote field camps with fish weirs, counting towers, and fish wheels and on marine vessels surveys in Norton Sound and the Bering Sea. This work was to support the professional biologist fish and wildlife studies.



Frazer Tee

I am Inupiaq from Anchorage, Alaska. Currently I am pursuing my Engineering degree from the University of Alaska. During my internship I worked at British Petroleum (BP) in Anchorage, AK. At BP I worked with the Rotating Equipment Team and created a Weibull Analysis Tool to predict failure probability for equipment used in the Greater Prudhoe Bay area. My work will be used to better address equipment repairs and replacement which will increase the efficiency of well exploration and production operations.

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Carson Withers

I'm Unangax from Anchorage, Alaska. I am currently pursuing my degree in Engineering at the University of Alaska. For my internship/research position I worked for the US Forest Service (USFS). I worked on several different projects in both the field and office settings. Field work included the construction development of camp grounds, hiking trails, and a remote bridge. Back in the office, I worked closely with my mentor on data analysis and field computations. All of these tied together a great experience working with USFS. Overall it was an amazing experience, one that I can say has changed me for the better and it's something I would enjoy again in the future.



Chevonne Fermoye

I am Yup'ik from Wasilla, Alaska. I am currently pursuing my Biology degree from the University of Alaska. During my internship/research project I worked for the U.S. Fish and Wildlife Service (USFWS) in the Koyukuk-Nowitna National Wildlife Refuge. My role as a Biological Technician was to support professional biologists working on fish and wildlife research projects. In this photo, I am working at a fish wheel collecting data on salmon to make certain escapement numbers are reached. This is important to ensure salmon populations are sustainable into the future.

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Continued Support

To support our work we have raised in approximately \$33 million from private industry, philanthropic organizations, and state and federal agencies. Our partners have provided \$6.5 million for a 14,000 square foot building to house LSAMP on the campus at the University of Alaska Anchorage and they have also provided \$4.4 million for an endowed chair for LSAMP so that minority students will have a faculty advocate in perpetuity. Our FY 2010 budget was approximately \$3 million with \$1.4 million from the State of Alaska general fund base. The funding from the State general fund base institutionalizes staff originally funded through LSAMP during Phase 1 and 2. It also provides support for our *Pre-College* component.

Our building provides 14,000 square feet of space that is forever reserved for the students as a hub for learning, safety, and a community of belonging. The dugout canoe design of the structure has become a landmark in our state. In the building our students meet to study and form the relationships that bring them success. The students drove the design process and were adamant that the



LSAMP students in front of our building after the grand opening in October 2006.

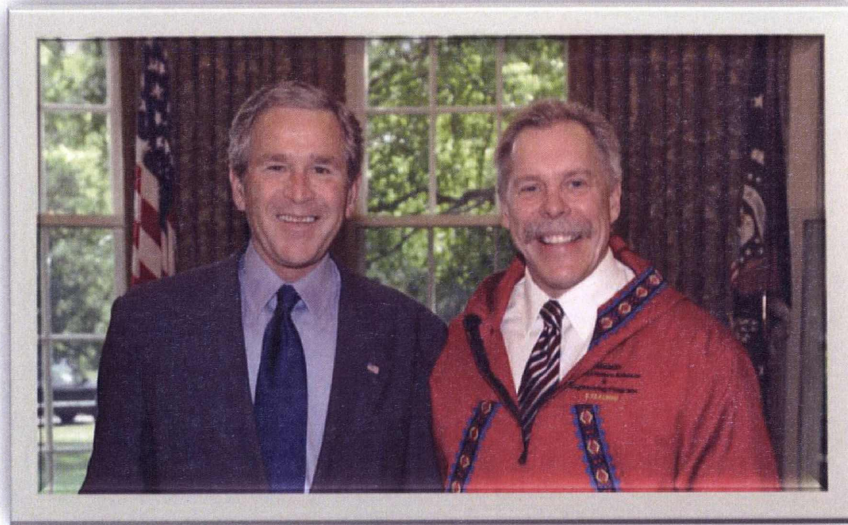
building design had to emanate from the native culture. The building opened in October 2006. Having our own space allows us to do better with each of the LSAMP programmatic components and activities. Students, industrial partners, and university faculty and staff gather daily to learn from each other. It has become a home for all of us. The impact will endure for generations.

The \$4.4 million to endow the Dr. Herb (*Ilisaurri*) Schroeder Chair will provide stable funding for a full-time, year-round faculty member dedicated to LSAMP students. The endowment ensures that there will be a faculty advocate for minority students on the University of Alaska Anchorage campus in perpetuity. The Dr. Herb (*Ilisaurri*) Schroeder Chair oversees and provides strategic direction for LSAMP and the related partnerships with other universities. The Chair is the key individual identified with our work and is responsible for building awareness and support of the program both within Alaska and throughout the United States.

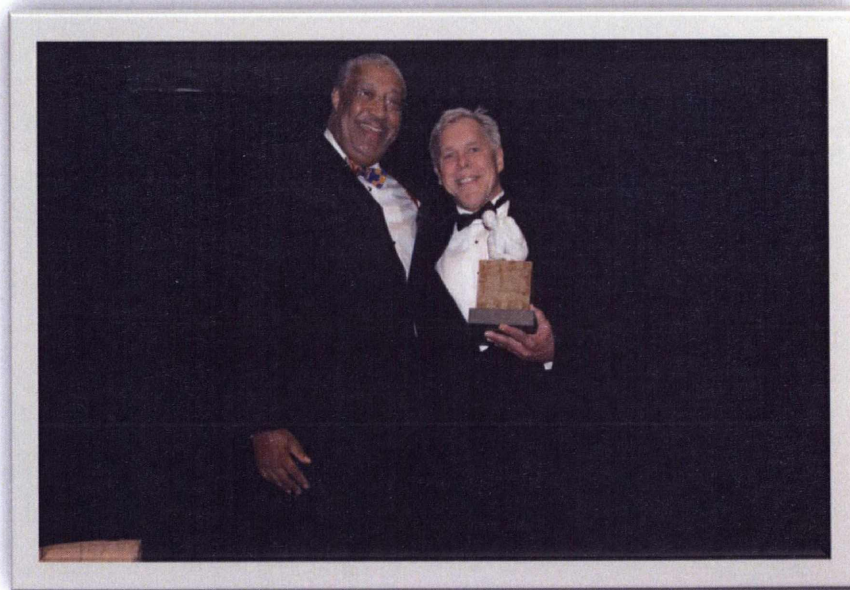
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Awards and Recognitions

Dr. Schroeder has been honored to receive the *Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM)*, the National Action Council for Minorities in Engineering (NACME) *Reginald Jones Founders Award*, and the Alaska Federation of Natives *Denali Award*, the top award bestowed upon a non-Native by the Federation.



Dr. Herb Schroeder in the Oval Office with President Bush while receiving the *Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring*.



Dr. Herb Schroeder receiving the NACME *Reginald Jones Founders Award* from Irving McPhail.

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Celebrating Success

Each January we host a celebration for our program. This started out small 10 years ago. Now it is a big event. January is the coldest and darkest time of the year yet we have had guests from all over the country come to learn more about the work we do and better understand our model. Donors provide us with funds for dinner and space in the Anchorage Dena'ina Convention Center downtown. All of our partner organizations are invited, as are the families of our students. Last year there were 830 people there. This year we are planning on 1,000. We are careful to structure the evening so that it is fun. We don't ever want the banquet to be dinner torture for our guests. Students run the event. Speakers are limited to one minute maximum. Our evaluators have found that our students feel that the sense of community fostered at this event is very important to their success. Partners and students receive awards of Native crafts and artwork provided with funds from our donors.



LSAMP Alumni (L to R) Willie Sakaegak, Michael Nabers and Shawn Takak.

Evaluating Success

We have conducted two external evaluations since 2001. The first was in 2007 and the second in 2010. A university retention program assessment survey was designed for the 2007 study to collect and analyze quantitative and qualitative data on the perceptions of the minority engineering undergraduates who participated in LSAMP at UAA. Specifically, the survey was designed to study currently enrolled LSAMP engineering undergraduate perceptions of the value and importance of the components of the LSAMP university retention program; their perceptions of the quantity and quality of their interactions with LSAMP peers, faculty, university staff, and the university system; and who they deem most important in helping them persist and be academically successful in college. The data collected from the survey were also analyzed for evidence of social and academic integration, educational goal commitment, institutional commitment, congruence with the university, and a local model of student expertise peer support.

The 2010 evaluation of the LSAMP metrics was designed as a single-institution mixed model validation study of the 2007 LSAMP university retention component assessment survey. The 2010 study replicated the 2007 LSAMP Survey instrument that included quantitative closed ended questions and qualitative open-ended questions. The 2010 study used the basic design of the 2007 survey instrument that was updated to reflect any programmatic and participant changes related to LSAMP at UAA since 2007. The 2010 survey was delivered in a web-based format using the *SurveyMonkey* web-based survey tool during February 2010.

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The 2007 LSAMP Survey results suggested that LSAMP students perceived LSAMP-related experiences as having important and positive impacts on their success as students. The top eight LSAMP-related experiences that were most frequently ranked as having the *most* positive impact on their success as a student by the 2007 survey respondents were:

- (1) Attending LSAMP tutoring/recitation sessions together
- (2) Studying with other LSAMP students outside of classes
- (3) Taking classes with other LSAMP students
- (4) Receiving LSAMP scholarship funding
- (5) Experiencing LSAMP summer internships
- (6) Attending weekly LSAMP meetings
- (7) Developing friendships with other LSAMP students
- (8) Socializing with other LSAMP students outside of class

Additional 2007 LSAMP Survey results suggested that LSAMP university retention strategies positively influenced the academic and social integration of the LSAMP students. The 2007 survey results further suggested that LSAMP students experienced high levels of peer support from other LSAMP students and high levels of help from LSAMP faculty and staff. The 2007 respondents reported that they experienced a high level of institutional commitment and congruence, or student-institution fit, within the UAA environment. The 2007 respondents reported a high level of educational goal commitment to completing bachelor's degrees in engineering. The 2007 survey respondents indicated in their responses to open-ended sentence completion questions that LSAMP created a supportive and safe learning community that was respectful of Alaska Native students and their cultures.

Conclusion of the 2007 and 2010 Survey Comparison for UAA Alaska Native LSAMP Engineering Students Based on the evaluation of the 2010 survey results, and their comparison to the results of the 2007 survey results, the external evaluator has concluded that the results of the 2010 LSAMP survey validated the 2007 LSAMP survey. The results of the comparison of the 2007 and 2010 surveys also support the notion that the research findings suggest that the LSAMP university retention approach has had a positive influence on the recruitment, retention and graduation of Alaska Native engineering students. LSAMP may be a new model for universities to attract and retain more minority engineering students through postsecondary degree completion.

We will evaluate our progress again in 2013 and 2016. The 2013 study will use the basic design of the 2007 and 2010 LSAMP survey instrument. It will be updated to reflect any programmatic and participant changes related to LSAMP at UAA since 2007. In addition we will analyze ex post facto quantitative enrollment, retention, and graduation data for the grant term.

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