

*University of Alaska Fairbanks*  
**2011 Annual Unit Plan**

The information collected in the Annual Unit Plan (AUP) is used in a variety of required reports, including but not limited to institutional accreditation reporting, Performance Based Budgeting (PBB), Alaska Budget System (ABS), Missions and Measures (M&M), and the Annual Operating and Management Reviews. Submission of the AUP is required in August of each year.

Please complete the following information using the format provided, and submit it electronically by August 27, 2010 to Deb Horner, University Planner ([dghorner@alaska.edu](mailto:dghorner@alaska.edu)) with a copy to Ian Olson, PAIR ([inolson@alaska.edu](mailto:inolson@alaska.edu)) as well as to Susan Henrichs, Provost ([fyprov@uaf.edu](mailto:fyprov@uaf.edu)).

<b>A. General Information</b>
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**A1. Unit Name: College of Natural Science and Mathematics**

**A2. Unit Mission Statement** - The mission is a short (no more than one paragraph) statement that describes why the unit exists. Unit mission statements that have been formally approved by the UA Board of Regents should not be changed.

Through instruction and mentoring, the College of Natural Science and Mathematics promotes students' self motivation to excel and guides them towards professional careers and public service in an environment of life-long learning. Through research, the College advances knowledge of natural, physical, technological and numerical systems from a northern perspective. Instruction, mentoring, research and outreach are brought together within undergraduate, graduate and continuing education programs to benefit Alaska, the nation and the world.

**A3. Core Services** - This section identifies the unit's major functions that support its mission. In the interests of brevity, links to websites with additional information on the unit may be included. This section should not exceed two brief paragraphs.

The College of Natural Science and Mathematics is the education and research leader in science and technology for the public and private sectors of Alaska and the north. Research, teaching, and outreach contribute to achieve a superior learning experience at the baccalaureate, master's and doctoral levels. Instructional programs use the most current technologies and methods to focus on developing skills for both scholarship and vocation to allow students to develop to their full potential and become the scientific

leaders of the future. Leaders throughout Alaska seek our input for solutions to problems facing Alaskans. CNSN faculty and staff are also innovators in science education outreach, with programs such as the Alaska Summer Research Academy, the Alaska High School Science Symposium, and the Girls on Ice programs.

## B. Progress Report

### B1. Major Accomplishments

List the significant unit accomplishments for AY09-10 in the areas indicated below. Please include the top three accomplishments in each area. Be brief; use web links to provide additional information if necessary.

- Teaching, research and public service:
  - CNSM graduated 27 Ph.D. students in Spring 2010. This was more than half of UAF's total Ph.D. production.
  - In July 2009, the Alaska Summer Research Academy (ASRA) had a record 148 students attend its 2-week program. In June 2010, an advanced module was added that attracted another 12 students for a robotics/marine science module.
  - The Engineering, Science and Technology Experiment Station (ESTES) has almost \$2M in grant-funded research expenditures and accrued more than \$350,000 in Indirect Cost recovery for UAF.
  - At the request of Computer Science Faculty, the department was transferred to the College of Engineering and Mines.
  
- Faculty, student and staff awards, competencies, regional/national/international recognition:
  - Dr. Richard Boone (Biology and Wildlife) was awarded the Usibelli Distinguished Teaching Award
  - Dr. Kara Nance (Computer Science) was awarded the Usibelli Distinguished Service Award
  - More than \$13,000 was awarded by CNSM to graduate and undergraduate students through our travel scholarship program to allow them to attend national and international meetings

## B2. End Results and Strategies

List end results, strategies, targets, etc, in the table below for the period July 1, 2009 to June 30, 2010, based on the 2010 AUP. Add rows as needed.

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Status:	Budget Impact
<p><b>Increase the quality and quantity of students in CNSM programs</b> with special emphasis on increasing the number of Alaska Native students in science and mathematics programs.</p>	<p>Focus in FY10 was on recruiting high quality graduate students. We will collect data on existing graduates students including what attracted them to UAF and what they see as strengths and weaknesses now that they are at UAF.</p> <p>We will take advantage of recent agreements with Chinese universities to recruit graduate students to UAF.</p>	<p>No specific targets set for measuring quality or quantity of improvement. However, we did set a target to make TA salaries identical to RA salaries through institutes and achieved that goal</p>	<p>Assessment tools include PAIR data for enrollments and degrees awarded.</p>	<p>Between 2008 and 2010, PhD students in CNSM increased from 149 to 176, a ~20% increase. Ph.D. graduates increased from 12 to 26, more than a 100% increase. TA positions increased from 65 to 74 (14% increase). Further support of ANSEP with an emphasis on attracting graduate students through Sloan Foundation support</p> <p>No movement on China recruitment</p>	<p>A significant increase in TA salaries was entirely unfunded and took CNSM and department resources from faculty lines and other "discretionary" funds</p>
<p><b>Improve student retention</b> in CNSM courses and programs.</p>	<p>Continue to work with departments on improving advising. Work with the advising center to improve mentorship of "at risk" students.</p>	<p>First-time freshman retention at 80%.</p>	<p>Assessment tools include PAIR data on student enrollment and graduation rates. On the short-term we hope that there will be anecdotal evidence that students have better access to information. On the longer-term we anticipate better retention in biological sciences programs.</p>	<p>PAIR data suggest a steady increase in retention, now at 82%.</p> <p>On the other hand, CNSM has had about 800 undergrad majors and averages 90 baccalaureate degrees per year, or a "time in program" of 9 years! Thus we seem to be retaining students well, but not seeing them through to graduation.</p>	<p>CNSM funded two faculty to serve as undergraduate advisors for summer 2010. Although this was partially funded by the Provost Office, it cost CNSM ~\$9,000. CNSM does not have a dedicated staff position for recruiting and retention. Adding such a person would have budget impacts</p>

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Status:	Budget Impact
<p>Serve the broader community through <b>science outreach</b>.</p>	<p>Expand ASRA activities to include some teacher training activities. We plan to offer a winter teacher workshop and/or summer module for teachers. We will partner with CEM to help increase the impact of ASRA.</p> <p>Improve visibility of Science Potpourri by increasing advertising.</p>	<p>Increase ASRA participation and fundraising to provide for full-time staffing.</p>	<p>We will look at student enrollment in ASRA and amount of corporate sponsorship and grant funding. Antidotal parent and student feedback will also be assembled.</p>	<p>Both Jeff Drake and Kate Pendleton are now 100% ASRA (which support from the Chancellor). This has allowed them more time to get ASRA sponsors and to “talk up” the program among potential students. Applications topped 180; 148 students in the camp for summer 2010 plus an advanced module in June 2010. Strong statewide and national applications pool. No movement on teacher module - we discussed that it might be outside the scope of ASRA, which is more student-based). Interest in winter camps, day camp, remote camp, so should see an expansion in FY10.</p> <p>Potpourri was better advertised and attended.</p>	<p>Overall this will impact CNSM through the need for additional office staff to meet College and ASRA needs. ASRA positions are not fully base supported.</p> <p>Science potpourri needs to be able to compensate coordinator. Given the health and safety issues, it can no longer just be a “volunteer” effort. CNSM does not have an advertising budget, so this comes out of funds that could be used for other purposes.</p>

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Status:	Budget Impact
<b>Increase the availability of CNSM service courses</b> that support other UAF programs.	Requested FY10 funding to support courses in physics and mathematics.	No specific targets set, however we worked for having no students denied access to core classes	Increased enrollment and SCR production in high-demand undergraduate courses.	Maximized lab sections for Chemistry 105, promoted additional sections of calculus and upper division mathematics courses with the addition of two new Math faculty. We saw a modest (1%) increase in overall SCR.	Chemistry is still a bottleneck and (expensive) adjuncts were hired to meet instructional needs. There is not enough staffing in Chemistry to meet needs and so will be a recurring expense.
To take advantage of our biomedical hires to provide coordinated <b>curriculum for students interested in biomedical science.</b>	Cooperative agreements between departments to teach a shared curriculum and curriculum changes. End result will be increased enrollment in biomedical programs.	New M.S. and Ph.D. programs in biomedicine, and also undergraduate biology tracks.	Enrollment numbers of graduate students and undergraduates in these tracks.	Not much movement this year to establish stronger tracks for students.	Currently none, but as program develops, additional faculty will need to be hired.
Better integration between teaching and research missions of CNSM, a presence and reputation as a research and teaching leader in Alaska	Better documentation of all that CNSM does with all of its faculty.	Annual reports will include statistics for ALL CNSM faculty, regardless of their appointments.  Adjustment of CNSM structure as needed.	Annual activities reports and CNSM reports will include all faculty. The key metric will be attracting and retaining quality faculty and students.	Annual activities reports are routinely collected. Currently most joint faculty do not report CNSM affiliation on publications, but will be advised to do so. Institutes receive "credit" for publications and proposal activity, although faculty have joint appointments.	None... or significant if reorganization is necessary. There needs to be some way that CNSM-only positions can have adequate startup out of general ICR funds.

### **B3. Analysis of Performance Metrics and Supporting Data**

Unit data will be provided by the UAF Office of Planning, Analysis and Institutional Research (PAIR). Respective data reports will be available at <http://www.uaf.edu/pair/performance-data/> for your use by July 30, 2010. Units may also include additional unit-specific performance data at the end of the section. Please use the same format in reporting unit-specific performance data. Please write a brief data analysis that incorporates the following aspects, where applicable:

#### ***Data Review***

- Evaluate the differences in final numbers as compared to your unit targets. Did your unit meet its stated goal? Why or why not?

For FY10 our target SCR was 30,000 and we exceeded that with 31,062 SCH. As discussed below, some of this was due to an increase in CDE SCR, however most was in LD SCR. Our Freshman retention is up to 82%, exceeding our goal of 80%. Our number of Ph.D. students of 176 far exceeded our target of 155. Our grant funding goal of \$2,000,000 was not met (we came in at \$1,809,000). We are still seeing the effects of a changing faculty, and how ESTES is used relative to other proposal offices on campus.

- Discuss data trends, both positive and negative.

Overall, the trends for enrollments in terms of SCH are up for CNSM. Increase was the greatest in Lower Division courses where increases in STEM majors have led to an increase in demand of “service” courses. Some of the increase was in CDE-generated SCH. This is somewhat disturbing as CDE courses are outside of the CNSM revenue stream. If these courses continue to pick up students, this could come at the expense of students taking “traditional” lower division courses. Upper division SCH is up this year after a one-year dip. Graduate SCH is basically flat, although the number of graduate majors (especially Ph.D. students) has been up for the last couple of years. Our biggest jump was in the number of Ph.D. degrees awarded. I do not know if a level of 25 or more is sustainable, however this is a goal for CNSM departments.

- Indicate whether or not the targets should be adjusted for future years in light of trends.

I have adjusted all of our targets to reflect the loss of the computer science department to the College of Engineering and Mines. CS generated ~1500 SCH, and has about 50 majors in undergraduate and MS programs. Future year statistics for CNSM will reflect a dip in these statistics. Also CS faculty were members of ESTES and so our grant income will be reduced accordingly. For other metrics we have exceeded our targets and I have adjusted the metrics accordingly.

## **Strategies**

- Reflect upon key unit strategies initiated over the last year – which ones worked and which ones returned results that did not meet your expectations. Please explain. Take careful note of this critical piece as it plays an important role in the university's overall PBB evaluation.

Increases in graduate student enrollment was a key part of our strategy by increasing TA stipends to match institute levels and to provide more graduate support in Biology and Wildlife. Graduate enrollments are going up slowly, especially at the PhD level.

Increases in freshman retention could be due to new efforts in undergraduate advising, especially in Biology and Wildlife with the hiring of a full-time advisor and better training of pre-med faculty advisors.

We were more aggressive about contacting potential Alaska scholars and providing them with information (and tours if they came on campus), as a way to increase the number of scholars.

We made a concerted effort to meet our “service course” obligations in Math, Physics and Chemistry. Increases in lower division SCH reflect our efforts to provide these courses. We did this by adding TAs and, in some cases, adjunct instructors. For science, it put more pressure on the lab supervisors.

- If there is a formal plan (e.g., Enrollment Management Plan) that is strongly related to a particular performance criteria, discuss any evidence that the plan is or is not achieving its objectives, and if not, any changes implemented or planned.

Our enrollment management plan was last updated in September 2007 and is out of date and is being re-evaluated.

## **Resources and Reallocation**

- Were there any resources allocated or reallocated to support achievement of your unit's targets and strategies? If so, please explain.  
No
- Are any areas of achievement suffering from a resource (re)allocation that additionally impacts other metrics?  
The pullback has limited the number of teaching assistants that we can potentially offer. This will impact enrollments in non-major courses and also the number of graduate students in our programs. We are reaching a critical juncture in our ability to hire and retain faculty.
- Of all your strategies, which is your most critical for unit success and is it in need of additional resources in order to make it successful?

Our requirement to meet the teaching requirements in our service classes is our most critical need. We do not have enough teaching assistants, technical support, lab space or faculty to teach additional sections of introductory classes, especially in Chemistry.

In outreach, we need to better fund ASRA (and find lab space) to allow it to develop into a year-round outreach program.

### CNSM statistics from PAIR

<b>Performance Metrics and Supporting Data</b>		Historical Data					FY11 Target		FY12
<b>Reporting Period: FY10 (July 1, 2009 to June 30, 2010)</b>		<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	Current	New*	Target*
1	Total Student Credit Hours Generated (ex. 500-level)	32,664	30,670	30,324	29,541	31,062	32,000	30,000	32,000
2	Lower Division SCH	18,759	17,505	16,972	16,429	17,351		16,500	17,000
3	Upper Division SCH	6,497	5,739	6,090	5,380	5,664		5,000	5,300
4	Graduate Division SCH	5,084	5,014	4,749	4,910	4,900		4,800	4,900
5	Student Credit Hours Generated via CDE	2,324	2,412	2,513	2,822	3,147		2,500	2,700
6	High Demand Job Academic Awards	98	112	99	108	95	110	100	110
7	High Demand Job Majors	801	808	786	803	790		750	770
8	Baccalaureates/Associates/Certificates Awarded	95	97	85	96	85		80	85
9	Masters/GCRTs Awarded	45	42	44	42	35		40	45
10	Doctorates Awarded	13	10	12	17	26		25	30
11	First-Time Full-Time Freshmen Retention (in %)	72	77	80	80	82	80	81	82
12	UA Scholar Majors	149	165	173	171	181	170	170	180
13	Undergraduate Majors	799	804	797	800	838	800	750	830
14	Graduate Majors Masters/Licensure	208	204	194	196	191	210	190	220
15	Graduate Majors Doctorates	157	154	149	170	176	160	170	180
16	Filled TA & RA Positions (Fall to Fall)	67	64	65	65	74		70	70
17	Grant Funded Research Expenditures	1,997	1,919	1,983	1,527	1,809	2,000	1,800	1,900
18	Indirect Cost Recovery	432	299	278	312	369			
19	Non General Fund Revenue	1,571	1,621	1,705	1,218	1,263			
20	Ratio of NGF Revenue to GF Revenue	60	43	47	114	295			

\*New FY11 and FY12 Target predictors take into account the loss of Computer Science at the start of FY11.



**B4. Publications in refereed journals/periodicals**

Please use EndNote to report publications for CY2008. The download is available at: <http://www.alaska.edu/keys/#Windows%20installers>, or <http://www.alaska.edu/keys/#Macintosh%20Installers>. Include the information as an attachment when you submit the AUP.

See attachment

**B5. Occurrences of applied research benefiting Alaska**

**\*NOTE: This list applies only to active CNSM/ESTES projects and does not include projects with CNSM faculty submitted through and managed through research institutes**

School, College or Institute	Project Title	Project Status (complete, active, awarded, proposed)	Description of contribution to the state of Alaska	Indicate if project is collaborative w/ AK Native or rural groups and/or involves traditional knowledge*
CNSM/ESTES	Boundary Inverse Problems in Glaciology	active	To gain a better understanding of the long-term stability and hazards of glaciers	No
CNSM/ESTES	Nuvuk Archaeology Project Paleoecology Studies	active	Contributes to our understanding of how long-term climate change affects the state	Yes
CNSM/ESTES	Understanding lake disappearance through time in northern Alaska parks	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	IPY: Human Response to Climate change at Cape Espenber AD800 to AD1400	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	Collaborative Research: What is the Nenana Complex? New Excavations at the Late-Pleistocene Owl Ridge Site, Central Alaska	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	New GK-12 Program: The CASE (Changing Alaska Science Education) for enhancing understanding of climate change	active	Better integrates K-12 schools with UAF to better prepare students for college	No

<b>School, College or Institute</b>	<b>Project Title</b>	<b>Project Status (complete, active, awarded, proposed)</b>	<b>Description of contribution to the state of Alaska</b>	<b>Indicate if project is collaborative w/ AK Native or rural groups and/or involves traditional knowledge*</b>
CNSM/ESTES	Alaska Native Students Engineering Program (ANSEP)	active	Supports native students in undergraduate STEM fields	Yes
CNSM/ESTES	Alaska Berries: Potential New Products and New Markets II	active	Researches applications of biochemicals in Alaska blueberries for possible pharmaceutical applications	No
CNSM/ESTES	URMA: In From the Cold: Undergraduate research and Mentoring in Alaska	active	Promotes research involving UAF undergraduates	No
CNSM/ESTES	Alaska Summer Research Academy (ASRA)	active	Provides high-school students with UAF research experiences	Yes
CNSM/ESTES	Amchitka Research Outreach Monitoring Center	active	Looks at long-term ecological impacts on Amchitka	No
CNSM/ESTES	Doctoral Dissertation Improvement Grant: Special Delivery: Transporting Inupiat mothers and babies in northwest Alaska	active	Provides funding for a PhD student working with native Alaskans	Yes
CNSM/ESTES	IPY: Understanding the Impacts of Icy Permafrost Degradation and Thermokarst-Lake Dynamics in the Arctic on Carbon Cycling, CO <sub>2</sub> , and CH <sub>4</sub> emissions, and Feedbacks to Climate Change	active	Contributes to our understanding of how long-term climate change affects the state	no
CNSM/ESTES	The Study of Sediments and Polynyas Associated with Pleistocene Lake Atna	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	Alaska Center for Climate Assessment & Policy (ACCAP)	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	Beaufort Sea Mesoscale Meteorology Model Study - Phase 2	active	Contributes to our understanding of how long-term climate change affects the state	No

School, College or Institute	Project Title	Project Status (complete, active, awarded, proposed)	Description of contribution to the state of Alaska	Indicate if project is collaborative w/ AK Native or rural groups and/or involves traditional knowledge*
CNSM/ESTES	Persistent Organic Pollutants in Alaska. New Experiments and Experiences for College and PRe College Students	active	Contributes to our understanding of how long-term pollution affects the state and its peoples	No
CNSM/ESTES	Fungal Successional patterns, Fruiting Response, Ectomycorrhizal Symbioses, and Hydrophilic Status Assessment of Wetlands Sitka Spruce	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	Hydrophilic Stat Assessment of SE Alaskan /Wetland Conifers Using DNA, Ectomycorrhizal Symbioses, Fruiting Responses, Successional Patterns, and Moss Indicators	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	UAF 2009-10 Army Research & Engineering Apprenticeship Program (AREAP)	active	Provides fellowships for UAF students to work with the Army CRREL	No
CNSM/ESTES	History of Mammals in Northern & Northwestern Alaska	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	Shismaref Relocation Road Material Study	active	Contributes to our understanding of how long-term climate change affects the state	Yes
CNSM/ESTES	Bedrock mapping and analysis in Alaska Highway Corridor	active	Provides basic geologic data for a possible gas pipeline	No
CNSM/ESTES	A New Method for Observing Variability in Freshwater Discharge from Arctic and Antarctic marine-terminating glaciers using passive acoustic measurements	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	Girls on Ice Program Support	active	Provides funding for a summer outreach program for girls in the STEM areas	No

School, College or Institute	Project Title	Project Status (complete, active, awarded, proposed)	Description of contribution to the state of Alaska	Indicate if project is collaborative w/ AK Native or rural groups and/or involves traditional knowledge*
CNSM/ESTES	Participation in IODP Expedition 323 Bering Sea Paleoceanography and Climate History	active	Contributes to our understanding of how long-term climate change affects the state	No
CNSM/ESTES	LSAMP (Louis Stokes Alliances for Minority Participation) Pacific Alliance	active	Provides funding for Alaska natives to participate in STEM research	Yes
CNSM/ESTES	Characterization of the Dynamics of Climate Systems and Identification of Missing Mechanisms Impacting the Long-term Predictive Capabilities of Global Climate Models Utilizing Dynamical Systems Approaches to the Analysis of Observed and Modeled Climate - CNSM	active	Contributes to our understanding of how long-term climate change affects the state	No

\*This information is being collected as an *Indicator* for UAF's NWCCU accreditation reporting.

### B6. Comparative scores of students who take professional exams

List examination scores:

School, College or Institute	Examination Type	Test Date	# of UAF Students Tested	UAF Pass Rate	National Pass Rate
CNSM	none				

\*Note: the Department of Chemistry and Biochemistry is considering initiating a standard test for graduating seniors in 2011.

## C. End Results and Strategies – FY 2011

### C1. End Results Table

Complete the table below for the period July 1, 2010 to June 30, 2011. Add rows as needed. For each end result, identify the applicable core theme(s) listed below.

- A. Educate: Undergraduate and Graduate students
- B. Discover: Through Research, Scholarship, and Creative Activity, including an Emphasis on the North and its Peoples
- C. Prepare: Alaska's Career, Technical, and Professional Workforce
- D. Connect: Alaska Native, Rural, and Urban Communities through Contemporary and Traditional Knowledge
- E. Engage: Alaskans via Lifelong Learning, Outreach, and Community and Economic Development

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Status:	Budget Impact
<b>Increase the quality and quantity of students in CNSM programs</b> with special emphasis on increasing the number of Alaska Native students in science and mathematics programs. EDUCATE, PREPARE	For graduate programs, we have achieved parity for TA salaries and they are now competitive with peer institutions. The next effort will be to increase the number of applicants to graduate programs.	Each program will see an increase the number of applicants and the number of AK native students	Applicant statistics will be compiled for each program. Data from previous years will be reviewed.	Because we did not receive the final increment to raise salaries by 10%, we chose not to do this in FY09. For FY10 we will do this.	Departments do not have additional funds for advertising and recruiting. If departments need to fund such activities, it will come at the expense of other core services
	Improve the quality and currency of our programs	Each program will have a current outcomes assessment report and plan.	Current outcomes assessment reports, evidence of feedback into program review	Most programs have current outcomes assessment, but some do not. All programs will undergo program review.	Hired another 1 month Associate Dean to look at programs and outcomes assessment
	Department websites will be updated and more user friendly	Create better service and tracking for graduate students in the program	We will try to get data on web hits, and also tracking where applicants come from.	Biology and Wildlife has upgraded its website and is now an example for the college	Web development has come through workload distributions, impacting the courses taught

<b>End Result:</b>	<b>Strategies to Achieve End Result</b>	<b>Target(s):</b>	<b>Measure(s)/Assessment(s):</b>	<b>Status:</b>	<b>Budget Impact</b>
	Recruitment of majors from Washington community colleges	Evidence of significant increase in transfer students from Washington, in place MOAs.	Survey transfer students for previous institutions. Track preparedness of the students	We have examined curriculum and made recommendations to the Provost, No MAU-wide articulation agreement yet, but individual departments have begun dialogs with Washington community colleges.	No significant impact on the budget yet. May increase CNSM budget if enrollment grows.
	Recruitment of graduate students from China	Agreements with specific Chinese universities for CNSM cooperation	Track number of agreements and exchanges involving CNSM faculty and students	China visits have led to more interest in CEM and SFOS, less in CNSM. I really do not see this having a lot of traction in CNSM, other than through math and physics courses in support of Engineering	No significant impact on the budget yet. May increase CNSM budget if enrollment grows. Funding is needed for recruiting at non-Alaska community colleges.
	Support ANSEP and AISES to improve recruitment and retention of Alaska Native Students in CNSM programs	Increase enrollment and graduation in ANSEP, external sponsorship for UAF program	Increase enrollment and graduation in ANSEP	AY10-11 will see a change in leadership of ANSEP	Budgetary impact seen in difficulties in financial structure with UAA holding the budget authority.
	Make progress towards an endowment for the Boone and Crockett Chair of Wildlife Biology	A Boone and Crockett plan of action	A Boone and Crockett plan of action and external support	We have proposed a "Boone and Crockett lite" consisting of a speaker series and visitors to raise awareness of the need for a full chair.	None at this time, but might need some travel money to get the program off the ground.
Improve student retention in CNSM courses and programs. EDUCATE, PREPARE	Better mentorship and advising of "at risk" students (those on probation or disqualification)	Currently 22% of all CNSM majors are at risk. We would like to get this below 15% for AY10-11	Look at % students on probation, track transition of premajors to majors, look at retention %	Departments have been given names of students who are on probation or disqualified. They are contacting them now.	None at this time
	Personal contact with potential students including AK scholars	AK scholars in CNSM will increase annually. All at risk students will be contacted.	Look at number of AK scholars enrolling in CNSM.	Our CNSM recruitment coordinator has become full-time ASRA. Departments now get regular updates on enrollment status.	No budget for this activity. Position part of FY12 request.

<b>End Result:</b>	<b>Strategies to Achieve End Result</b>	<b>Target(s):</b>	<b>Measure(s)/Assessment(s):</b>	<b>Status:</b>	<b>Budget Impact</b>
Serve the broader community through <b>science outreach</b> . CONNECT, ENGAGE	Foster partnership with CEM to expand activities of ASRA. Also expand ASRA to meet other needs	Greater visibility of UAF to local and national constituencies.	Student applications/admissions in ASRA. \$ of corporate sponsorships.	This is going very well. ASRA is growing, but there is a lot of strain on overworked staff.	ASRA director is not base budget funded. CNSM support of ASRA takes away from other programs
	Web and newsletter presence	Increased awareness from alumni and potential donors and potential new students	Responses to newsletters and fund raising appeals.	We will do a survey of newsletter recipients to find what medium is the best.	This takes resources for a staff position, and for printing information and postage. We also have no press information office.
	Science Potpourri and other public events	Designated coordinators for outreach.	Public and faculty participation in these activities	CNSM has strong outreach activities. They need better publicity and advertising.	Compensation for staff who coordinate these events and deal with publicity and safety aspects
<b>Increase the availability of CNSM service courses</b> that support other UAF programs. EDUCATE	Expand sections and courses to meet growing demand. No student denied access to required courses.	No specific targets set, however we worked for having no students denied access to core classes	Increased enrollment and SCR production in high-demand undergraduate courses. Added additional section of Differential Equations and Chemistry.	Chemistry labs are now full. Need to reassess space usage in Reichardt to meet needs of programs. Also need to see about reallocating faculty positions to better support "high demand" programs.	There are no funds for new faculty lines in Chemistry, Physics or Math. Funds will have to be reallocated from other programs. No funds for startup for new faculty hires, or for lab renovations.
To take advantage of our biomedical hires to provide coordinated <b>curriculum for students interested in biomedical science</b> . EDUCATE, PREPARE, CONNECT	Cooperative agreements between departments to teach a shared curriculum and curriculum changes. End result will be increased enrollment in biomedical programs.	New M.S. and Ph.D. programs in biomedicine, and also undergraduate biology tracks.	Enrollment numbers of graduate students and undergraduates in these tracks.	I have tasked the biomedical science group to develop first a M.S./Ph.D. curriculum, but no solid proposal yet. Biology department is developing undergraduate track for majors in biomedicine.	Currently none, but as program develops, additional faculty will need to be hired.
<b>Better integration between teaching and research</b> missions of CNSM, a presence and reputation as a research and teaching leader in Alaska EDUCATE, DISCOVER	Better documentation of all that CNSM does with all of its faculty.	Annual reports will include statistics for ALL CNSM faculty, regardless of their appointments.  Adjustment of CNSM structure as needed.	Annual activities reports and CNSM reports will include all faculty. The key metric will be attracting and retaining quality faculty and students.	Annual activities reports are routinely collected. Currently most joint faculty do not report CNSM affiliation on publications, but will be advised to do so. Institutes receive "credit" for publications and proposal activity, although faculty have joint appointments.	None... or significant if reorganization is necessary. There needs to be some way that CNSM-only positions can have adequate startup out of general ICR funds.

## D. Long Range End Results and Strategies – FY 2012 and Beyond

### D1. Long Range End Results Table

Complete the table below. For End Results with an anticipated start date of 2012, the results should be in line with budget requests for FY2012. Add rows as needed. For each end result, identify the applicable core theme(s) listed below.

- A. Educate: Undergraduate and Graduate students
- B. Discover: Through Research, Scholarship, and Creative Activity, including an Emphasis on the North and its Peoples
- C. Prepare: Alaska's Career, Technical, and Professional Workforce
- D. Connect: Alaska Native, Rural, and Urban Communities through Contemporary and Traditional Knowledge
- E. Engage: Alaskans via Lifelong Learning, Outreach, and Community and Economic Development

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s)	Budget Impact	Anticipated start date
<b>Increase the quality and quantity of students in CNSM programs</b> with special emphasis on increasing the number of Alaska Native students in science and mathematics programs. EDUCATE AND PREPARE	Support ANSEP and AISES to improve recruitment and retention of Alaska Native Students in CNSM programs	Increase enrollment and graduation in ANSEP, external sponsorship for UAF program	Increase enrollment and graduation in ANSEP	Budgetary impact seen in difficulties in financial structure with UAA holding the budget authority.	ongoing
	Recruitment of majors from Washington community colleges	Evidence of significant increase in transfer students from Washington, in place MOAs.	Survey transfer students for previous institutions. Track preparedness of the students	No significant impact on the budget yet. May increase CNSM budget if enrollment grows. Funding needed for recruiting efforts	As soon as MOA is signed and ongoing from there
	Place students in Medical, Dental, Pharmacy and Veterinary schools	UAF will have WICHE seats in northwest universities for all professional schools	Number of seats available and filled for UAF preprofessional majors.	Impact to Alaska not to UAF	2011 (if not sooner)
	Expansion of programs in high demand areas (Biomedicine, atmospheric science, climate change, science education)	CNSM will progressively increase enrollment and graduation rates in high demand fields.	SCR and graduate student production will measure impact as will grant \$ from NIH, NSF, NOAA, etc.	Initial impact for faculty hires, but we will regain this in increased SCR revenue and ICR recovery	ongoing



<b>End Result:</b>	<b>Strategies to Achieve End Result</b>	<b>Target(s):</b>	<b>Measure(s)/Assessment(s)</b>	<b>Budget Impact</b>	<b>Anticipated start date</b>
	Boone and Crockett Chair of Wildlife Biology	A Boone and Crockett endowed chair	Securing necessary funding to match B+C contribution	No fund 1 needed, but will require substantial effort from development office.	ongoing
<b>Improve student retention</b> in CNSM courses and programs. EDUCATE, PREPARE	Pre-professional health advising, recruiting and placement.	We will see increased enrollment in medical-oriented biology and chemistry classes. We will have	Student surveys about placement into medical, dental, etc. schools.	Would need approximately \$90,000 to fund position (in FY10 and FY11 request), none for WICHE program participation.	UAF needs to negotiate this with the post-secondary education division to participate in WICHE programs
	Personal contact with potential students including AK scholars and in communication with students at risk (i.e. probation and premajors)	AK scholars in CNSM will increase annually. All at risk students will be contacted.	Look at % students on probation, track transition of premajors to majors, look at retention %	Need a full time recruiter, advisor for CNSM	FY11?
Serve the broader community through <b>science outreach</b> . ENGAGE, CONNECT	Foster partnership with CEM to expand activities of ASRA. Also expand ASRA to meet other needs	Greater visibility of UAF to local and national constituencies.	Student applications/admissions in ASRA. \$ of corporate sponsorships.	Ongoing. ASRA director is not base budget funded. CNSM support of ASRA takes away from other programs. ASRA expansion would necessitate more positions, some with base funding.	ongoing
	Web and newsletter presence	Increased awareness from alumni and potential donors and potential new students	Responses to newsletters and fund raising appeals.	This takes resources for a staff position, and for printing information and postage. We also have no press information office.	ongoing
	Science Potpourri and other public events	Designated coordinators for outreach.	Public and faculty participation in these activities	Compensation for staff who coordinate these events and deal with publicity and safety aspects	ongoing

<b>End Result:</b>	<b>Strategies to Achieve End Result</b>	<b>Target(s):</b>	<b>Measure(s)/Assessment(s)</b>	<b>Budget Impact</b>	<b>Anticipated start date</b>
<b>Increase the availability of CNSM service courses</b> that support other UAF programs. EDUCATE	Expand sections and courses to meet growing demand. No student denied access to required courses.	No specific targets set, however we worked for having no students denied access to core classes	Increased enrollment and SCR production in high-demand undergraduate courses. Program review will reflect these trends	Increased tuition return could allow for more hires and lab sections	Ongoing as we assess enrollment trends
To take advantage of our biomedical hires to provide coordinated <b>curriculum for students interested in biomedical science.</b> PREPARE, EDUCATE	Cooperative agreements between departments to teach a shared curriculum and curriculum changes. End result will be increased enrollment in biomedical programs.	New M.S. and Ph.D. programs in biomedicine, and also undergraduate biology tracks.	Enrollment numbers of graduate students and undergraduates in these tracks.	Currently none, but as program develops, additional faculty will need to be hired.	Ongoing, but BOR presentations would probably be in FY11 or beyond
<b>Better integration between teaching and research</b> missions of CNSM, a presence and reputation as a research and teaching leader in Alaska EDUCATE, DISCOVER	Better documentation of all that CNSM does with all of its faculty. .	Annual reports will include statistics for ALL CNSM faculty, regardless of their appointments. Adjustment of CNSM structure as needed.	Annual activities reports and CNSM reports will include all faculty. The keymetric will be attracting and retaining quality faculty and students.	None... or significant if reorganization is necessary.	ongoing
	Increase number of proposals submitted by CNSM faculty through ESTES	All CNSM faculty not associated with institutes will submit at least one proposal annually	ICR increase for ESTES to make it self sufficient and able to fund startups for new faculty	Potential increase in CNSM revenue. ESTES is mostly self supporting	ongoing

## D2. Top three challenges for FY2012

Identify the top three challenges confronting the unit for the period July 1, 2011 to June 30, 2012. These challenges must be directly related to the unit's FY2012 budget request.

Challenge 1: Supporting growing service course obligations in Chemistry, Physics and Mathematics

Challenge 2: A major challenge for all units in the college is our lack for funding for TAs. The TA slots both allow us to teach required service courses and provide funding for graduate students in our programs. For most programs, there is faculty capacity to advise more graduate students and sufficient quality

applicants. The limiting factor for many programs is the money to support these students . CNSM has had to absorb the significant increases in student stipends, and this has led to our inability to maintain TA numbers. This is an ongoing request and desperate need.

Challenge 3: Expansion of Biomedicine programs and coordination between teaching and research in that field. CNSM's top faculty priority in our FY12 request was for additional Biochemistry faculty. This is a core area for creating and supporting biomedicine programs at UAF and for attracting additional NIH funding. This is part of a broader challenge to better articulate the relationship between research and teaching in the sciences which will include better documentation of all CNSM faculty contributions.

### **D3. Use of unanticipated funds**

Specify what the unit would do with additional funds, should they be made available later in FY2012. Activities must support the FY2012 budget request.

If we received funds beyond that required to fund the items listed above, we would consider funding

- (1) Provide additional support to expand introductory Chemistry courses (labs and lectures) to meet Engineering and Science student demands
- (2) Expansion a partial faculty position in seismology (about \$25,000 for a quarter-time position) and other faculty salary commitments in Geology and Geophysics
- (3) Development officer for the college (about \$50,000 if matched by the UAF Office of Development and Advancement)
- (4) Full-time support for ASRA staff (including staff expansion; highest FY12 request)
- (5) Support for graduate students including additional TA and RA positions.

## **E. Additional Information**

### **E1. Unit Unmet Needs**

Identify unmet unit needs that could be supported through private, non-governmental funding, such as donors, foundations, etc.

Note that these needs are the same as last year. None of them have been met

- (1) Establishment of a Boone and Crockett endowed chair of Wildlife Biology
- (2) Student travel funds for graduate and undergraduate students to attend professional meetings
- (3) Undergraduate student research funds
- (4) Scholarships and other support for the Alaska Summer Research Academy (this is improving over previous years with New York Life and other donors coming on board)
- (5) Bridge funds for graduate students (e.g., summer support)

- (6) Faculty development (e.g., training, travel)
- (7) College Development Officer to help build a culture of donation to CNSM.

## **E2. Major Capital Investment Priorities and Space Needs**

In order to better connect academic and research priorities with capital investment planning, identify the unit's highest priority facility needs, if any, for consideration in the six-year capital plan. Units should also describe any other significant facility or space management issues in this section. Be sure to show the linkages between facilities needs and unit End Results.

1. The top priority for the college continues to be the Life Sciences Teaching and Research Facility. The department of Biology and Wildlife is scattered between several buildings on lower campus and West Ridge. This is the largest department in the college and it does not have a single home or identity. If this project does not get going soon, we will lose key areas of teaching and research in biomedicine. This space issue also directly impacts our ability to offer enough sections of courses in Chemistry and Biology due to other pressures for laboratory space.
2. The second priority space need in the college is an expansion of the Chapman Building to accommodate both the Department of Mathematics and Statistics (DMS) and the Department of Computer Science (CS), or some other reallocation of space. Currently there is no room for DMS or CS TAs, other graduate students, adjuncts (for office hours), or even quality offices for faculty. This relates directly back to CNSM's end result of providing adequate service courses for engineering and other growth programs at UAF. The building also needs a major technology overhaul to accommodate CS needs, and now that CS is in engineering, it may be more important for them to have better facilities closer to the other engineering faculty.