

The Faculty Senate passed the following motion at Meeting #158 on April 6, 2009:

MOTION:

The UAF Faculty Senate moves to approve a Certificate in Ethnobotany.

EFFECTIVE: Fall 2009 and/or
Upon Board of Regents approval.

RATIONALE: See the full program proposal #73-UNP from the Fall 2008
review cycle on file in the Governance Office, 314 Signers'
Hall.

Marsha Jousa 4-6-09
President, UAF Faculty Senate Date

APPROVAL: _____ DATE: _____
Chancellor's Office

DISAPPROVED: _____ DATE: _____
Chancellor's Office

Overview:

Kuskokwim Campus's (KuC) proposed Certificate in Ethnobotany (EBOT) will be the first program in the state of Alaska that will concentrate on traditional knowledge and uses of native plants by indigenous groups. It has grown out of a desire to maintain the traditional knowledge base that exists, to provide the educational foundation for further academic degrees, research, and entry-level positions; and to become the framework for potential development of new uses for native Alaskan plants. This certificate is designed to articulate into the Associate of Science (A.S.) degree, approved by UAF Board of Regents and Northwest Commission on Colleges and Universities (NWCCU) in summer 2008.

Indigenous plants play a major role in the everyday lives of all of Alaska's rural residents. While the western term "ethnobotany" may not be recognized by many of these traditionalists, the importance of indigenous plants and the crucial roles that the flora of the region plays in food, medicine, and community well-being are recognized by all. The EBOT Program will build upon a substantial base of knowledge already in place within rural Alaska. EBOT instructors will be able to draw upon the copious local base of traditional knowledge, regionally-recognized traditional ethnobotanists, and traditional healers who have committed their lives to this science.

KuC is one of the two-year rural campuses of the College of Rural and Community Development (CRCDD), University of Alaska Fairbanks (UAF), located in Bethel, Alaska. Bethel is 400 air miles west of Anchorage, the nearest metropolitan area, and lies 70 miles from the mouth of the Kuskokwim River on the Bering Sea. The KuC service area encompasses the Wade Hampton and Bethel census units, and the combined area of these two census units is 57,827 square miles – approximately the size of the state of Illinois. The region covers the lower delta area of the Yukon and Kuskokwim rivers (Y-K Delta). The natural landscape is primarily wet to moist tundra (treeless) with a maze of rivers, streams, ponds and lakes formed through eons of deposits by these two large rivers.

KuC serves 46, primarily Yup'ik/Cup'ik and a few Athabascan, villages with 56 tribes in the Y-K Delta and is the only institution of higher education located in this geographic area. Alaska Natives consistently comprise over 70 percent of the KuC student enrollment. The Yup'ik people are the largest group of Native Americans in Alaska to remain on their traditional lands, speak their native language, and practice a subsistence lifestyle. Year-round hunting, fishing, and related seasonal subsistence practices govern community and family life. Yup'ik/Cup'ik societies continue to emphasize traditional values related to the relationship between the people, the land and customarily used resources.

The proposed Certificate in Ethnobotany is being developed to address several interests. First, statewide statistics on higher education attainment for Alaskans are troubling. Only 28% of 9th graders in the state of Alaska enroll in college four years later. Only 18% are still enrolled in their sophomore year and only 6% graduate from college within six years (Source: NCES: Common Core Data, IPEDS Residency and Migration, Fall Enrollment, and graduation rate surveys, 2004). The educational needs in rural Alaska are particularly acute. High school graduation rates in the Y-K region are the lowest in the state. The results of needs assessments conducted by KuC in the Y-K region noted that many students show neither an aptitude for nor interest in science,

technology, engineering and math (STEM) fields. Improving these statistics will involve effort on many fronts and one is developing programs that can engage students' interest before they get to college, encouraging them to stay in school, enroll in college, obtain useful and marketable skills, and perhaps continue towards a four-year degree.

Ethnobotany, a discipline that is intimately connected with the traditional lifeways of rural Alaskans, is a program that can dramatically increase the number of rural students in university courses because it brings academic credence to a familiar and valued aspect of their subsistence lifestyle.

Secondly, there is no ethnobotany degree at the certificate, associate, baccalaureate, or post-graduate levels at any institution of higher learning in the state. With approval of this program, UAF will become the first institution in the United States to provide a Certificate in Ethnobotany (EBOT) and at the A.S level. Currently there are only a handful of colleges and universities in the whole of the United States that award degrees in Ethnobotany and all of them are at more advanced degree levels – either Bachelors or Masters degrees (McClatchey, etal , *An Evaluation of Educational Trends in Economic and Ethnobotany* February 1999 in CIEER - Centre for International Ethnomedicinal Education and Research). In addition, none of the Tribal Colleges in the US with certificate programs offer one in Ethnobotany. Currently, to become trained in Ethnobotany a student must attend an out of state program, as well as pay out of state tuition costs. A multi-year absence from Alaska may result in a student not returning to the state for employment. The EBOT program will provide students with the opportunity to gain academic credentials in a science-oriented field while remaining in their home communities.

Throughout the development of this program we have sought input from local experts both from rural communities and within UAF. An EBOT Advisory Board was assembled in 2006 to help guide the development of this program and it includes the following members (see Appendix A): Ann Garibaldi, Craig Gerlach, Pat Holloway, Stefanie Ickert-Bond, Betty Rogers, Gloria Simeon, and Charles Walsh. In addition we have solicited the expert knowledge and assistance of the EBOT Elder Council (see Appendix B) to help establish a baseline of current traditional knowledge and assemble information for the upcoming publication, *A Yup'ik Manual of Ethnobotany*, which will become the foundation for the EBOT program at KuC and a resource for the communities in the Yup'ik speaking region of Alaska.

The EBOT Program has strong potential for advancing and enriching experiential educational opportunities and offerings in science in rural Alaska. Grounding the new ethnobotany certificate in ethnoscientific and ecological knowledge of Native Alaskans features a rich multidisciplinary foundation that will invite interest from beyond the Y-K region.

The State of Alaska has a great need for individuals trained in the sciences in both rural and urban areas. The EBOT Program, another option for students in the associate of science degree or a specialization for those who advance to baccalaureate programs in STEM fields at other campuses and universities, will offer a core EBOT certificate, including basic biology, chemistry, and math, from which the student can articulate to newly created A.S. degree at CRCDC campuses. This program will be a rural-oriented program that is easily adapted for statewide delivery.

Additional employment and educational fields can be entered upon completion of this program. The program will provide a strong educational starting point for students interested in entering an undergraduate program, and students will be able to continue their ethnobotanical studies in several different areas: Biology, Anthropology, Plant Sciences, Linguistics, Yup'ik Language, Education, and Art, for example. In addition, the EBOT certificate will provide a solid transition into other rural-centric programs such as Tribal Resource Management, Rural Development, and Alaska Native Studies.

Course work to complete the Ethnobotany certificate will take approximately two to five years as students entering this program will enter at many different skill levels. Highly motivated students can complete this program within the two-year time frame. Completion time is dependent on many factors affecting students, including number of classes taken per term, job, work, and family commitments. Classes will be delivered primarily by distance education, as well as face-to-face field courses and intensives at KuC, as needed.

Distance delivery in the Y-K region is now being enhanced by the recent partnership that KuC has made with a local phone company, United Utilities Inc. (UII). Through this project, training of 12 village technology specialists (in communities where UII has installed satellite towers to support Internet connectivity) is being supported. The agreement has provided nearly \$67,000 to KuC for training (*University of Alaska Kuskokwim Campus Component Budget Summary, State of Alaska FY08 Governors Budget*, http://gov.state.ak.us/omb/08_OMB/budget12.15.07/UA/comp746.pdf).

Objectives of the EBOT Certificate program:

The Ethnobotany Certificate program fits well within the overall mission of CRCDC by providing an entry-level academic area of study that focuses on the cultural and natural resources of the communities in the Y-K region. This area of Alaska represents one of the most culturally intact indigenous populations in the state and, indeed, in the United States as a whole. The communities are mostly subsistence-based, both in spirit and in economy. People of the region are still considered traditionalists; subsistence hunters and gatherers who combine primarily seasonally available wage employment. Few of the professional and managerial jobs are occupied by people from the region. The EBOT program will help to further the mission of Kuskokwim Campus (KuC) by providing new educational opportunities that will allow local people to gain the credentials they need to assume these leadership positions. This will promote economic development and community wellness, in addition to reducing the high cost of importing expertise and services. Students will also be able to investigate related areas of personal and community interest and need through the EBOT elective choices.

The EBOT program is designed to provide students with a smooth segue to the further pursuit of associate and baccalaureate programs.

Objectives of the EBOT Program:

- To provide quality interdisciplinary academic instruction in the areas of biology, botany, ecology, anthropology, and chemistry so that students may gain the skill sets needed to become active stewards in natural and cultural resource management in their communities.

- To provide culturally relevant research opportunities for KuC students and faculty in the life sciences. Partnerships developed will include organizations such as UAF's Institute of Arctic Biology, US Fish and Wildlife Service, Alaska State Fish and Game, NIMA Corporation, Hawaii community colleges, the Pacific Alliance, Alaska Native Science and Engineering Program, etc.
- To provide students, in their home communities, with an attractive, culturally relevant curriculum and an intermediate step in entering the associate and baccalaureate academic pathway in the sciences.
- To provide training that can be used as a stepping stone to higher-level positions for an underemployed rural workforce.
- To promote awareness of the scientific significance and economic potential of Alaska's native flora and model efforts supporting the development of regional economic ethnobotany initiatives and knowledge-based economies in the Yukon-Kuskokwim Delta and all of rural Alaska.

Proposed general catalog layout

Ethnobotany Certificate

College of Rural and Community Development
Kuskokwim Campus
(800) 478-5822
www.bethel.uaf.edu

Ethnobotany Certificate:

An Ethnobotany (EBOT) Program Certificate represents the completion of 30-32 credits in the interdisciplinary study of the role of native plants in indigenous cultures. Students will gain an understanding of native plants, their uses and ecology, in the context of their cultural, social, and economic importance by combining scientific and anthropological concepts and methods in tandem. The certificate emphasizes culturally relevant, place-based course offerings that highlight the ways that this information contributes to other fields of study, such as cultural and natural resource management, community development, adaptive resilience, and human health. It is also designed to serve as a bridge to a variety of natural science and liberal arts associate and baccalaureate programs.

Admission is open to all individuals, especially those employed by or interested in employment with state, federal, or tribal agencies or other local entities in rural Alaska which provide natural resources management services.

Students should have a high school diploma or GED and an interest in science-related fields. It is strongly recommended that students seeking admission to this program have completed two high school, lab-based science courses preferably in biology, chemistry, or physics.

Students whose ACT/SAT scores are not high enough to place them into regular college level classes will be required to take the ASSET, COMPASS, or Accuplacer test and will be placed into the appropriate developmental level course.

To remain in good standing, students must:

- a) Maintain an overall 2.0 grade point average
- b) Maintain a C grade or better in all required courses

Ethnobotany Certificate Program

1. Complete general university requirements (page 86)
2. Complete the following certificate requirements.....**9-10 credits total**
 - a. **Communication.....3 credits**

ENG 111X or ABUS 170

- b. **Computation**3-4 credits
DEVM 105 or MATH 103X or Math 107X (4 credits)
- c. **Human Relations**3 credits
ANTH/SOC 100X or ABUS 154

3. Complete the following program requirements.....21-22 credits total

Natural Science Core Courses (8 credits total)

BIOL 103X (4 credits) – Biology and Society
or
BIOL 104X (4 credits) – Natural History of Alaska
or
BIOL 116X (4 credits) - Fundamentals of Biology II*
and
CHEM 103X (4 credits) – Basic General Chemistry
or
CHEM 105X (4 credits) – General Chemistry I**

Ethnobotany Core Courses (10 credits total)

EBOT 100 (3 credits) - Introduction to Ethnobotany
EBOT 200 (1 credit) – Seminar in Ethnobotany
EBOT 210 (1 credit) - Ethical Wildcrafting
EBOT 220 (2 credits) – Ethnobotanical Techniques
EBOT 230 (3 credits) - Ethnobotanical Chemistry

Electives (advisor-approved 100 or 200 level course) from the following subject areas (3-4 credits total):

ANL, Alaska Native Languages
ANS, Alaska Native Studies
APAR, Applied Art
ANTH, Anthropology
ECON, Economics
ED, Education
ENGL 212, or ENGL 213X
ESK, Eskimo
BIOL, Biology
NRM, Natural Resource Management

Minimum Credits Required.....30-32 credits total

*Course requires BIOL 115X, CHEM 105X, and placement in ENG 111 and MATH 107X

**Course requires placement in ENG 111 and MATH 107X

Appendix D

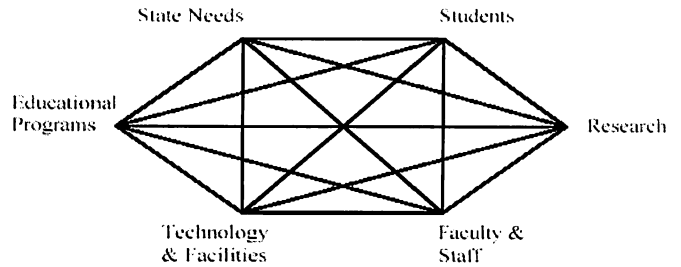
RESOURCE COMMITMENT TO THE PROPOSED ETHNOBOTANY CERTIFICATE PROGRAM Using FY08 figures

Kuskokwim Campus, unless designated otherwise

Resources	Existing	New		Total
	College/School	College /School	Others (USDA)	
Regular Faculty (FTE's & dollars including staff benefits)	10% English- \$7700, 10% Biology - \$8375, 10% Math - \$6542, 10% Dev Studies - \$10,517 10% Librarian - \$9636 5% Dev Math - \$5393		100% EBOT -\$75,106	\$123,272
Adjunct Faculty (FTE's & dollars)			\$11,015	\$11,015
Teaching Assistants (Headcount)	N/A	N/A	N/A	
Instructional Facilities (in dollars and/or sq. footage)	Classrooms - 2755 SF Library - 8800 SF			11,555 SF
Office Space (Sq. footage)	UAF - 340 SF KuC - 430 SF			770 SF
Lab Space (Sq. Footage)	Computer Lab - 950 SF Bio/Chem/Phys Lab - 595 SF			1,545 SF
Computer & Networking (in dollars)	Use of connectivity, hardware & software - \$52,810			\$52,810
Research/ Instructional/ office Equipment (in dollars)				
Support Staff (FTE's & dollars including staff benefits)	5% Business Office - \$6401 5% Financial Aid - \$3876 5% Student Services - 5523 5% LAN Manager - \$3949 10% IT Specialist - \$6786 10% IT Lab - \$5049 10% Writing Center - \$5873 10% Library Tech - 8621			\$46,079
Supplies (in dollars)			\$7,786	\$7,786
Travel (in dollars)	Summer Science students travel - \$15,000		\$62,842	\$77,842

University of Alaska Board of Regents
Program Approval Summary Form

MAU: UAF (CRCD, KuC)
Title: Certificate in Ethnobotany (EBOT)
Target admission date: Fall 2009



How does the program relate to the Education mission of the University of Alaska and the MAU?

This program will encourage rural students to continue their formal academic education beyond high school and to pursue science based studies, an area where few Alaska Natives are currently enrolled. Because native plant use is already an integral part of many rural peoples' life-skills, ethnobotany is an area of high interest to rural students and is one that has immediate applicability. The EBOT program will provide a new learning path for rural, primarily Alaska Native, students to become interested in science as it applies to their lives. The program will also encourage students who wish to pursue undergraduate work in a variety of fields, including: botany, biology, anthropology, business, or education.

The EBOT program represents collaboration between rural community members, professional ethnobotanists, traditional native plant practitioners, University faculty, the Georgeson Botanical Gardens, the UA Museum, and the Alaska business community. Our EBOT Advisory Board (see Appendix A) includes members from all areas listed above who are dedicated to providing culturally and regionally relevant academic instruction to students. This fertile collaboration is bolstered by the participation of many Elders (see Appendix B) from the Y-K region who have shared and continue to share their traditional knowledge of plants with the instructors and students helping to develop the EBOT program.

This type of grass roots effort to create a community-driven program epitomizes the mission of CRCD, whose goal is to be an "engaged institution, positioned to respond to students and partners in developing the economic and social well-being of Alaska Native communities and beyond". It also fits well with UAF's stated purpose to promote student success, provide educational opportunities with an Alaskan emphasis, and facilitate community development for all state residents.

While this is a relatively new field of academic study, the EBOT certificate program is not yet a requirement for other programs. It is, however, designed to provide a new avenue into a variety of existing associate and baccalaureate degree programs, including biology, anthropology, botany, and natural resource management. This training will also provide students with the opportunity of developing the necessary credentials required to gain entry-level employment in local agencies and businesses of the type previously mentioned that were requesting closed-cohort classes from KuC.

The EBOT program will provide educational opportunities for students throughout the state without requiring them to change or leave their culture or heritage. This will be accomplished by using a combination of traditional knowledge systems, standard instructional methods, and cutting edge distance delivery technology. The Kuskokwim Campus is committed to educating Alaska Native and rural residents, assisting them to affect social changes in their communities, thereby enriching the quality of their lives and cultures. The EBOT program applies directly to UAF's emphasis on knowledge related to "Alaska, the North, and their diverse peoples".

What State Needs are met by this program.

There is a well-documented need for skills-based education in rural Alaska, and CRCDC is ramping up to be able to provide more of the necessary training to its rural community members, as evidenced by the large increase in certificates and personnel that have been added to their ranks in the past several years. Two of these recently-approved certificates, Veterinary Science and High Latitude Range Management, serve as models for community-driven program development.

Like most other states in the US, Alaska does not have an Ethnobotany program. The new EBOT program will represent a significant level of academic innovation by creating the first Certificate in Ethnobotany at the associate of science level available at any institution of higher learning in the state and, indeed, the nation.

Ethnobotany has applications in natural and cultural resource management, home and community business development, community health and well-being, education, and ecotourism. All of these areas are in dire need of educated employees working for local and tribal governments to deal with related issues. This program will provide additional educational opportunities so that local people can gain the credentials they need to assume leadership positions in their communities and begin to reduce the high cost of importing expertise and services.

Urban Alaska would be served by providing a source of regionally-relevant natural and cultural knowledge of the native flora of Alaska. This widely untapped natural resource is available to all Alaskans, both rural and urban.

What are the Student opportunities and outcomes? Enrollment projections?

The EBOT Program has been designed to provide students with culturally relevant coursework that has not been previously available. We are encouraged that in the EBOT courses that have been successfully piloted (taught under ANTH and EBOT designators) student response has been very positive. The fact that EBOT courses build on extant community knowledge and life skills means that we have begun with material that will help to address the unique cultural and economic conditions within rural Alaska. Other programs that do this well, including Tribal Management, Construction Trades, and Rural Human Services, have been shown to be successful at attracting and retaining students here at UAF.

The skills and competencies that EBOT students will learn are part of the overall education required to work effectively at an entry level in the fields of ethnobotany, biology, botany, and anthropology. As the demand throughout rural Alaska for regionally-relevant education increases EBOT certificate recipients will have achieved the training skills necessary for entry level employment in natural and cultural resource management, including: local/regional native corporation, Alaska Department of Natural Resources, and US Fish and Wildlife Service. Other occupational opportunities for Ethnobotany Certificate recipients include entrepreneur and ecotourism guide.

An outstanding example of how ethnobotanical opportunities have already begun to be realized in Alaska is *Arxotica* (<http://www.arxotica.com/>), the winner of the top award (\$60,000) at the Alaska Federation of Natives (AFN) 2007 Alaska Marketplace competition (<http://www.alaskamarketplace.org/50.cfm>). This company, created and run by the Sparck triplets (three Alaska Native women from the Y-K Delta region), produces “a range of designer skin-care

products of which key ingredients are those traditionally hand gathered from the wilderness that characterizes much of the 42 million acres of the Yukon/ Kuskokwim Delta". Another successful Alaska Native-run ethnobotanical business is *Yup'ik Way*, created and operated by Gloria Simeon (EBOT Advisory Board member), also from the Y-K region of Alaska. While the considerable potential of this type of entrepreneurial endeavor is evident, it is important to note that these companies were forced to go outside of Alaska to obtain the expertise needed to realize these accomplishments because we they were unable to find it here. We will begin to rectify that situation with the EBOT program.

In the past several years KuC has been laying the groundwork for the EBOT program by offering several programs that emphasize training in the fundamentals of science, technology, engineering and math (STEM) fields; including formal efforts like the Emerging Scholars Program (KuC's first-generation college student recruiting and retention program), the NSF-TCUP STEM bridging program, and the summer Talent Search (federal DOE TRIO grant) program geared toward junior high and high school students. Given that this type of science training groundwork has been laid, the EBOT program is in an excellent position to take advantage of this situation and to begin enrolling students by Fall 2009. With a minimum of eight students per year, this program will be serving 24 students by 2011.

Describe Research opportunities:

The primary focus of the EBOT certificate is to provide students with a strong academic foundation in science. This type of background will open many doors for rural students in their own future academic endeavors because the program is designed to dovetail into the Associate and Bachelors of Science degrees.

Since one of the goals of the EBOT program is to provide culturally relevant research opportunities for KuC students and faculty in the life sciences, successful completion of the EBOT program requirements will facilitate active development of and participation in research projects by rural and Native Alaskan students and rural campus faculty. The KuC ethnobotany faculty member, Dr. Jernigan, has already met with potential collaborators on the KuC and UAF main campuses and is beginning to develop partnerships with researchers and other stakeholders working in the Y-K region on current and future projects. Students will be included in these research efforts apace, as they progress through the EBOT program. This model of research collaboration can extend to other rural campuses in the state that have also incorporated science instruction into their curriculum.

The paucity of scientifically-trained rural students available to work with researchers on ongoing research projects in rural communities will begin to be addressed, as students become familiar with faculty and research methodology. With this increased awareness will come increased understanding and, it is hoped, an increase in the amount of rural/urban collaboration within the state.

By keeping tabs on student progress, the EBOT program will be providing much-needed data regarding efficacy of distance delivery of courses and community response to regionally-tailored University programs.

Describe Fiscal Plan for development and implementation:

Funding for development and faculty salary for the EBOT certificate have been provided by the United States Department of Agriculture's (USDA) Alaska Native/Native Hawaiian Serving Institutions (AN/NH) Higher Education program, whose mandate is to increase the presence of

Alaska Natives and Native Hawaiians in USDA careers. Ethnobotany represents an excellent tie-in for USDA because the practice of using plants as food, medicinals, and fuel is deeply rooted in Alaska Native culture as well as the study and practice of agriculture throughout the world.

Current USDA funding for the program extends to 2011, and also includes coverage of expenses for 20 students to complete the EBOT Certificate program. Much of the cost of student support is allocated to student travel, as EBOT 100 (Introduction to EBOT) is designed to be taught in a natural field setting. Because the success of the EBOT program is of such high priority to KuC, many of the full time faculty and staff there will also be contributing part of their time (total of 55% FTE faculty, 60% FTE support staff) to instruction and student support. KuC also has available for use by the EBOT program 3879 SF of instruction, office and lab space, as well as \$52,810 in-kind contribution of networking hardware and software.

The EBOT program will be available to University campuses throughout the state and could generate between at least \$9,600 if the minimum of 8 students take an average of 10 credits (\$120/credit) per year. We anticipate that as student participation increases these fees will be covered by sources other than grant funding, including village and regional Native corporations. These partnerships have sustained many successful rural programs at UAF (Rural Human Services, Tribal Management, and Construction Trades, for example) and have the potential to do the same for the EBOT program.