

SUBSTANTIVE CHANGE PROSPECTUS NORTHWEST INDIAN COLLEGE Bachelor of Science in Native Environmental Science

1) MISSION AND GOALS

The information contained in this prospectus is built upon the vision of our elders and the hard work of Northwest Indian College (NWIC) employees for well over a decade. NWIC submits this prospectus in order to request a substantive change from a two year degree granting institution to a four year degree granting institution. NWIC proposes to implement a Bachelor of Science Program in Native Environmental Science (BSNES), NWIC's first Bachelor degree program. The paragraphs below describe the nature and purpose of the BSNES in the context of institutional mission and goals. A more detailed description of the program is given in the "Educational Offerings" section.

The BSNES is intended to meet the critical need for Native American environmental scientists and managers who are well grounded in both culture and scientific knowledge. The BSNES was designed with considerable input from Pacific Northwest Tribal elders, leaders, environmental managers, educators and students. This transition to a Bachelor degree granting institution has been long anticipated by Pacific Northwest Tribal Nations and is an important goal of the NWIC Strategic Plan. The development of the BSNES builds upon the successes and lessons learned in the development and implementation of the Lummi Indian School of Aquaculture, the precursor of NWIC, and the NWIC Tribal Environmental and Natural Resource Management Associate Degree Program (TENRM), a national model for integrative environmental education. The program will focus on the environmental sciences with an emphasis on the integration of knowledge, the relationship between culture, traditional ecological knowledge and western science. The program will strengthen students' ability to think contextually and to integrate content. It will increase student's self-awareness and connection to their past. The strength of the program lays in its commitment Tribal communities, its capacity in sciences (both instruction and research) its strategic partnerships and its commitments from Pacific Northwest Tribal Nations. These program goals resonate with NWIC mission and strategic initiatives intended to support Tribal communities.

The BSNES reflects our commitment to serve students located away from NWIC's Lummi campus in its flexible structure and by utilizing our system of extension sites, interactive television capability (K-20), partnerships with Pacific Northwest Tribes and Tribal organizations, and support systems for student while at NWIC's Lummi campus. The program design will also serve students interested in other areas of sciences by allowing them to transfer to other institutions with as many credits as possible.

Alignment with the NWIC Strategic Plan

In January of 2003, President Cheryl Crazy Bull established a college-wide strategic planning process overseen by a committee comprised of constituency representatives. Through a series of

retreat activities, campus-wide planning sessions and focus groups, the College community examined the College's mission, vision, and purposes. In addition, a community needs assessment was conducted to provide guidance on academic and program priorities. Other planning contributions were made in the form of various student and staff surveys as well as a review of prior planning efforts. Two hundred seventy five completed surveys provided the College with a glimpse into the lives of native people throughout the region. The process has been expansive and inclusive. The Committee refocused its efforts on more than one occasion in the planning process in response to pressing issues that arose during the planning effort. Two critical junctures occurred when the Committee examined the College's tribal mission by focusing on the tribal values that shape our vision and when the Committee decided to take a more structured approach to the design process.

Upon approval by the Board of Trustees of the NWIC Strategic Plan, the College community was charged with the implementation of four strategic initiatives that focus the College's resources on its core mission of providing a high quality academic and/or vocational education in the context of a fully culturally integrated tribal curriculum. We have identified what we believe about education, the College and our students. We have named the values that underlie our work. This document informs our decisions and from which we can report our progress. We have a roadmap to guide the College in its work. This road map is the creation of the hearts, minds and spirits of all the tribal people and our allies who helped us in this work. A listing of the College mission, strategic initiatives and goals is provided in the appendix of this document. For the complete College strategic plan go to www.nwic.edu/subtopics/plan.html

The College's strategic plan is a living document with periodic review, reporting requirements and serves to substantially inform the direction of College programming and the allocation of College resources. Several key indicators arising under the plan serve as a baseline for assessment of student learning and institutional accomplishments.

Development of Bachelor Degree Programs at NWIC

The development of the BSNE is a direct result of the strategic planning process. The strategic plan specifically directs the College to "Develop baccalaureate degree programs in areas of high priority to tribal communities in the NWIC service area" (Initiative One, Goal One).

For many years, Northwest Indian College has recognized the need to develop well planned programs at the baccalaureate level that offer Native American students a high-quality alternative to mainstream educational institutions. This need was highly apparent in meetings with the tribal members, tribal administrators, tribal elders, the College's Board of Trustees, students, and former students who had left their respective reservations to obtain education in traditional post-secondary settings. The results of a community needs survey completed by 237 respondents from Pacific Northwest Tribal communities in 2003 ranked "higher education 4-Year degree" as the number three priority after basic adult education and job/technical training. Identification of this need, coupled with the College's commitment to serve Tribal communities, our ability to address cultural content, learning style preferences, student family needs, as well as provide a small college atmosphere, and high quality of educational programs provides the incentive to expand degree programs to the baccalaureate level.

Support for Tribal College baccalaureate degree program development also came from a national study by the Carnegie Foundation for the Advancement of Teaching entitled "Tribal College: Shaping the Future of Native America" which supported many of these observations. This report states: "During our visits it became clear that the western strategies for teaching are not always the

best way in Indian country." Utilizing alternative teaching styles, inclusion of cultural practices within the curriculum, and close ties to the surrounding Indian community, were some of the practices cited in the Carnegie report as effective alternatives to Eurocentric strategies for teaching. We intend on implementing these teaching strategies within the BSNES.

Upon completion of its 5-year accreditation review the College administration began the process of investigating its options for bachelor degree programming including studying the requirements of accreditation, reviewing programs in other tribal colleges and mainstream institutions and allocating resources to curriculum and assessment in support of the program. Specific student interests were studied along with opportunities for employment especially in the Pacific Northwest. Qualifications of faculty and staff were assessed as was the institution's library and technology resources. After review, NWIC administrative team members identified human services, entrepreneurship, teacher education and science as specific areas of interest. Further review narrowed the first choice to native environmental science resulting in the authorization by the College Board of Trustee to pursue accreditation at the four-year degree granting level and approving submission of this prospectus.

Identification of Environmental Sciences as a Priority

The importance of supporting Tribal efforts in the stewardship of Tribal and adjacent lands is supported by the results of the community needs survey conducted in 2003 which indicated that education degrees in the sciences were ranked very high in importance. Areas of need included the fields of fisheries, aquaculture, agriculture and natural resources. In addition to and building upon the direction of the Strategic Plan and Community Need Survey the college has engaged tribal communities in the NWIC service area in the design of this program. During the fall of 2006 the College hosted a series of dialogues at Pacific Northwest Tribal Nations as well as National and Regional Tribal environmental science conferences/meetings in order to receive input on the BSNES. Through participation by elders, Tribal leaders, Native and non-Native Tribal environment employees, environmental scientists, educators and students we were able to design a program which we hope will meet the needs of Tribal communities in the Pacific Northwest. A summary of those dialogues is provided in the appendix.

The establishment of the Program Structure and Content

The NWIC Strategic Plan also provided the design criteria for the development of the structure and content of the BSNES and will continue to form the foundation of the development of this degree.

Tribal content

The hallmark of this program will be its roots in Native culture. Initiative Three of the Plan states "NWIC enhances the living values of our tribal communities and embraces bringing traditional ways into living contact with contemporary society". This, along with the strategic goals below, will guide faculty and staff in the development of curricula, course projects/assignments, enrichment activities and internship/assistantship components of the BSNES.

- Promoting and acquiring of tribal knowledge
- Ensuring that teaching and learning is grounded in traditional knowledge and the use of contemporary best practices ensuring a voice of native people teaching and learning
- Helping students learn ways to appropriately present native identity and knowledge

- Empowering students by increasing their cultural competencies and resiliency
- Assisting the development of the Native Studies degree and supporting tribal autonomy

2) AUTHORIZATION

June 7, 2006:

Board of Trustees motion: A motion was made by Jana Finkbonner and seconded by Sandy Finkbonner to approve Northwest Indian College to begin the process of the Prospectus for Substantive Change for a 4-year Degree Program.

4 ayes, 0 nays, 0 abstains. Question called. Motion carried.

February 16, 2007:

Board of Trustees motion:

3) EDUCATIONAL OFFERINGS

Philosophy

“All things are connected” The Bachelor of Science in Native Environmental Science (BSNES) is firmly rooted in this philosophy and worldview. It is not our intention to create a degree program that is based upon the models of environmental science degree programs at “mainstream” universities and colleges but to create a program that is built upon the foundation set by Native elders, leaders and scholars. In addition, the program will contain a substantial amount of western scientific theory, methodologies and technologies, many of which can serve Native communities well. However we feel that this must be embedded within the context of a Native epistemology and culture if it is to serve Native peoples on their efforts to build healthy, vibrant communities, human and non-human, that resonate with culture and tradition.

Basic Structure

In traditional western thought, the environmental sciences are compartmentalized. However, the BSNES is built on Native traditional view of inter-connectivity. Although the course matrix may appear to be somewhat similar to mainstream university programs, the inter-connectivity of areas such as the natural world, culture, history, human organization and spirituality will be substantially build into curricula, lab/field activities, internships, capstone projects, extra-curricular activities and student group dynamics. Use of ceremony, seminars and enrichment activities are among strategies used to help students make these connections.

Guiding Principles

The BSNES is designed to serve Tribal communities of the Pacific Northwest and will have far-reaching impact on Native communities throughout Indian Country. Culture, stewardship for future generations, and sense of place are the foundations of the program. The BSNES will:

- help students to find their gifts and their potential,
- help students build integrity, personnel responsibility, commitment, high standards
- inspire students through joyful and invigorating learning.
- not abandon our students but will welcome them back and work with them at any point
- respect spirituality and encourage sharing of different traditions
- encourage students to support each other and will take advantage of the power of group dynamics
- utilize many modes of pedagogy, acknowledging that different students learn in different ways
- strive to meet our students needs
- maintain high academic standards
- engage not only NWIC faculty, staff and students but also Tribal elders/leaders, students' families, mentors, organizational partners and others

Extension

Because of strong family and community connections and because NWIC students often are older with children, the BSNEs will have a substantial extension site/distance learning component enabling students to remain at home in the first several months of the BSNEs. Junior and senior years of the program will be at the Lummi campus during the initial implementation period. Providing students with the option to return home during the summer(s) for internship experiences will allow them to apply the knowledge they have gained to their local ecosystems as well as environmental and cultural issues. Additionally, utilizing Tribal professionals at extension sites for, mentoring and internship supervision will provide students will valuable professional relationships at home. NWIC is investigating the feasibility of offering some or all of the junior and senior years at its extended campus sites through interactive conferencing, classes that combine independent learning with concentrated group experiences and through partnerships with local high schools and natural resource programs for lab settings.

Student Movement through the Program

During all Tribal dialogues held at Tribal Nations in the PNW participants strongly spoke for the need for a program that provided academic rigor. Graduates who transition to environmental positions in Indian country must be able to deal with a high level of environmental, political and cultural complexity. If these emerging professionals are to be effective they must have the knowledge and skills necessary. An open and welcoming attitude towards potential student is very important for the institution. We will work with each and every student in his or her efforts to succeed. We also want to make sure that as each student progresses he/she has the greatest chance for academic success. Course learning outcomes, prerequisites and sequencing have been developed to ensure that students have the prerequisite knowledge and skills necessary before being able to proceed to the next BSNE level. The college is assuming that many students entering the program may not be prepared for college level academics and will therefore utilize existing developmental courses and academic support services in their first year. The

College is also investigating the possibility of implementing a summer enrichment session for students who are almost ready of the freshman year but need refreshment in basic skills including math and writing. Summer short courses to reinforce science, math and writing skills will be a regular aspect of program implementation.

Flexibility for Transfer

In keeping with our intention of supporting native student access to education, NWIC is developing a program with a focus on environmental science that provides students with flexible transferability to other specialty science areas in other institutions. Program sustainability is enhanced by this flexibility while allowing us to focus on our unique contribution to education through cultural context. Students can complete our program with utmost confidence or transfer at various points in their studies to academic partners with specialized degrees in areas such as biology, chemistry, pre-medical, engineering and science education.

Goals - Programmatic

Overall goals for the program include:

All aspects of the program including curricula, guest lectures, community engagement, student assignments, academic enrichment activities and internships are intended to provide students with knowledge and skills that can benefit Tribal communities.

The academic emphasis of the BSNEs will be upon the sciences both from a Native American and Western perspective.

Access to at least the freshman and sophomore years of the program will be provided to students throughout the Pacific Northwest through NWIC's extension sites and the Lummi campus. Junior and Senior Years will be delivered at the Lummi campus. The College will evaluate the feasibility of implementing junior and senior levels of the program at one or more extension sites.

The program will embrace many modes of teaching and learning including involvement in cultural activities, hands-on field/lab exercises, and involvement in research, internships, community service, personal reflection and peer teaching/learning.

The BSNEs will welcome (and welcome back) students at any academic/personal level and will ensure that graduates have the attributes described in learning outcomes.

Goals – Learning Outcomes

In addition to BSNEs programmatic goals, learning outcomes have and will continue to guide the program development process. In addition to the input provided by stakeholders and university partners, course sequences and credit requirements outlined in the sections below are based upon the institutional learning objectives, cultural competencies and

strategic goals. These documents are provided in the appendix. Learning outcomes have already been developed for the lower level courses that are part of the BSNES.

A draft listing of BSNES learning outcomes has been prepared and is provided in the appendix. NWIC's institutional learning objectives focus on written and oral communication as well as computer, qualitative and reading skills. BSNES learning objectives include scientific/environmental knowledge and skills, observation and analysis, problem solving, decision-making, personal/social effectiveness and multi-cultural/international understanding. Further work this spring and summer will finalize the BSNES learning outcomes. The development of new courses as part of the BSNES will be based upon all these outcomes and competencies.

It is our intention that the BSNES prepare students to enter the workplace with not only the knowledge required of beginning environmental scientists but also technical skills required in the workplace. The internship program will engage Tribal, academic and governmental scientists and environmental managers in this process.

Additionally, it is our intention that this program prepares students for graduate studies in the environmental sciences or environmental studies. The BSNES also provides students with analytical and problem solving skills necessary to professional and personal success. Additional coursework may be required in areas such as mathematics, physics and chemistry and can be provided via independent learning with NWIC science faculty or through courses at partner institutions.

Teaching/Learning Process

Flow

The design and content of the BSNES program is based upon a logical flow, helping students:

- build of basic skills in first year, scientific knowledge in second and third years, and specialization, refinement, and application in the fourth year
- deepen connection between the student, his/her Tribal culture/history and academic knowledge and skills
- take responsibility for own learning as they proceed through the program
- increase their self knowledge of there own abilities and knowledge
- apply their knowledge and skills in increasingly greater scale throughout the program (single lab exercises, group class projects, internship, to capstone project)
- increase their understanding of and ability to deal with complexity (e.g. scientific, cultural, inter-personal)
- increase their ability to use of mathematics and statistics in answering questions

Curriculum

Throughout the program the faculty will utilize a broad spectrum of strategies in the development of curricula and teaching of courses. These will include:

- Integration of curriculum (first year experience) (social and natural sciences)
- Use of case studies (developed in partnership with The Evergreen State College)
- Inquiry based/problem solving
- Place-based education
- Hands-on applied learning
- Involvement of Native and non-Native leaders, scholars and elders to motivate and inspire students
- Capstone project with project management skill building part of outcomes

Course sequencing has been carefully designed on the following criteria:

- prerequisite courses and building of knowledge
- suitability of courses to integration via curriculum, seminar and linking (e.g. inorganic chemistry/geology)
- at least one course deals specifically with life in Indian Nations (e.g. Rights of Indian Tribes, American Political System), each quarter of the first two years
- Courses with a lot of hands-on field learning activities are scheduled during fall or spring quarters (e.g. botany, field methods)
- most quarters do not contain only science courses

Although not designed with this in mind, the course sequence allows a substantial amount of time for faculty to develop new courses. With the exception of Survey of Science and Ecology, new courses will not begin until April 2008. This will allow faculty to concentrate on the important cultural components of the program in the initial development phases.

Delivery Mode

The first and second years of the BSNEs will be offered both on the Lummi campus and all extension sites. The First Year Experience (FYE) described below has already been developed and used at Lummi and extension sites. Aspects of the FYE have already been tailored to meet the unique needs of extension site students. In the second year of the BSNEs science courses in chemistry and geology will be taught. Thanks to an award through NSF NWIC has developed chemistry labs that can be delivered at a distance. Some additional work will need to be done this year related to geology labs. We will also use online technologies (WebCT, BSNEs website, discussion boards, webcam, pod casts etc.) in support of face-to-face courses, ITV courses and the BSNEs related lecture series. When surveyed almost 2/3 of science faculty indicated that they would be willing to travel to extension sites in order to run additional labs and field exercises. Since these courses will be delivered via ITV, Lummi based faculty will also teach from extension

sites on occasion. This will support a sense of a learning community among BSNES students. FYE creates a sense of community among students. This is easily done at the Lummi campus. At the extension sites we intend on engaging part time science instructors and/or Site Managers in supporting students. Lummi based science faculty will also be able to support these students via ITV, email, BSNES discussion boards and telephone.

Comparison of Western and Native American worldviews, traditional ecological knowledge, applicability to Tribal communities, integration of science fields of study, use of case studies, hands-on learning, problem-based learning and integration with field/lab research experiences will be themes that run through third and fourth year courses. Seminar courses, required in each quarter, will be used to help students create constructive knowledge gained through classes, lab/field experiences and extra-curricular activities.

In the next several months NWIC will study opportunities to deliver junior and senior level courses at a distance using innovative modes of delivery. Delivering courses via distance learning to extension sites is relatively easy. The challenge comes in supporting students through tutoring/mentoring/advising, leading students in lab/field exercises, involving students in community based research, allowing students to take advantage of extra-curricular activities and providing students with the benefits of a learning community atmosphere (e.g. seminar dynamics, interaction with students from other areas, peer support). On the other hand delivering upper level courses at extension sites will increase enrollment and may allow the program to customize curricula to meet the local needs of students (e.g. local ecosystem and cultural knowledge). NWIC recognizes the tremendous value of place-based education and agrees with our sites that extension site implementation is possible and will in the next months investigate the feasibility of doing so. One possibility is to pilot a BSNES upper level courses at one or two extension sites and then to phase-in expansion to other sites.

Regardless of the mode of delivery of upper level courses BSNES faculty and Student Services staff will work to provide the opportunity for student to engage in community based research experiences both during the academic year and in the summer. NWIC faculty has numerous research projects underway in which we would like to involve students. For example, an "NSF Research Experience for Undergraduates" award provides paid research internships for students. Our goal is to provide such academic year paid experiences for all BSNES students. NWIC and the University of Washington have recently submitted a joint proposal in this regard. An abundance of summer internship experiences are available for Indian students willing to travel to other areas. For students wishing to return home for the summers we hope to implement an internship program with Tribal environmental professionals for these students.

Northwest Indian College delivers online courses using the WebCT CE 4.1 learning management system. Currently, there are approximately 20 courses available online, including the majority of the Northwest Indian College requirements and General Education Requirements for the Associate of Arts and Sciences Degree in Native

American Studies. By the end of 2007 it is expected that all of these requirements will be available to students through online learning.

In addition to online courses, Northwest Indian College has been piloting the development of hybrid learning courses, which utilize both video conferencing and online learning. The premise is that students will spend half of their course time with the instructor in ITV classrooms and half the course time completing lessons delivered online. Northwest Indian College has currently developed and delivered 5 classes using this hybrid format. Due to the success of the pilot, more classes are currently being developed to utilize this delivery method. BSNE faculty will be evaluating the suitability of the type of distance learning for the program. A description of the facilities and infrastructure supporting BSNE distance learning is given in the “Facilities” section below.

Another mode of instruction that BSNE anticipates using is independent learning contracts. We intend on using this mode to a much lesser extent and usually in special cases where students have “stopped-out” and/or left the area but hope to catch-up in order to re-enter the program. This mode utilizes text-based instruction with phone and email support from faculty.

Description of the Program of Study

Recruitment will target college ready students or those students whose basic skills in reading, writing and math can be brought up to college-level within the first year. Others will be encouraged to begin in the College’s Adult Basic Education or GED programs. The College anticipates implementing a summer enrichment activity to assist students in academically preparing to begin in September 2007.

Additionally, each BSNE student will meeting each quarter with their assigned science faculty advisor in order to review their performance and ensure that their class registration meets their needs and is not beyond their present capabilities. The advisor will also be able during the term to assist the student.

Below is a description of the BSNE for each year class of the program. See the BSNE Course Matrix provided in the appendix.

First Year Experience

Most students entering NWIC as freshman enter the First Year Experience (FYE), an integrated block of courses comprising the three quarters of their first year. We envision that this existing program will be the entry point for most BSNE bound students. The FYE has a substantial amount of science content (FYE development was funded by NSF) both within the courses and through enrichment activities that integrate culture and sciences. Through faculty involved in teaching within the FYE and involved extension site personnel we will identify early those students who are interested in the BSNE. In

these cases students will be assigned a science academic advisor and will be encouraged to participate in science related extra-curricular activities. These include involvement in the NWIC American Indian Science and Engineering Society (AISES) Chapter activities (e.g. AISES Regional/National conferences, communication with regional AISES professional chapter members), cultural and environmental field trips, involvement in NWIC science research projects, environmental community service projects and guest lecture series both cultural and environmental. At the completion of their first year BSNEs students should have the reading, writing, computer and math skills as well as the diligence, discipline and commitment necessary to successfully complete second year courses described below.

The goals of the FYE are:

- Create an environment that motivates students to major in Science and Math.
- Academically prepare students to be successful in Science and Math.
- Determine and build on the individual student's academic and social competencies.
- Create an educational milieu that builds on the student's strength.
- Maintain cultural and tribal relevancy for each student.
- Create a learning community that supports academic excellence.
- Provide a safety net for personal problems of individual students.
- Teach students how to learn.
- Create a self-motivated learning style within a learning community.

The first year shall be considered a "developmental" year for those students whose test scores indicate that this is necessary. Each FYE student shall enter into an integrated academic cohort. The testing specialist shall establish competencies for each student. Using this data, specific "coursework" for each student within his or her learning cohort shall be established during the enrollment process. With this approach, initially in a cohort of twenty students, four students may be at Math 98 level, six students at Math 99, and ten students at Math 100. The same spread may occur in classes for the writing courses. In addition to developmental math and English courses, all students enroll in public speaking, computers, Native American history/philosophy, natural history (Puget Sound or Interior Basin) and a study/life skills course. These courses are fully integrated among each other. An additional survey of science course will be required for BSNEs students ensuring that students have the basic scientific knowledge in biology, chemistry, physics needed to pursue second year courses required in the BSNEs program. An example of this integration would be to assign to the cohort a relevant science topic such as water quality. The student and cohort would research the topic, using math to compute statistics, using the Internet to find background, and conducting group discussions to enhance individual research. The student would give an oral presentation along with a written presentation using the principles discussed in the cohort instruction. This schedule and approach had been used successfully with our NSF funded Tribal Environmental and Natural Resource Management program (TENRM), the result of which has been shown in much higher than average retention and completion for students lacking needed skills.

Most importantly, the FYE student is immersed into their culture and history in order to effectively understand their role in their Native community. By offering introductory and yet fully integrated science courses together with Native history, culture and philosophy, illuminating the critical need for Indian environmental scientists, and exposing students to the diversity of environmental careers, we hope to generate interest sciences. The FYE will be an important recruitment experience for the BSNES.

FYE is not only available to Lummi campus students. Through ITV technology, as well extension site personnel such as cultural faculty, science faculty, instructional assistants and site coordinators, students at sites also benefit from the cohort dynamics. Additionally, Tribal history, culture and philosophy as well as environmental science education will be tailored to that location.

Second Year

Studies in the second year for BSNES bound students will continue to build reading and writing skills (especially scientific and technical) and the use computer skills (e.g. within chemistry courses). Importantly this year will provide students with the math and scientific knowledge necessary to successfully enter junior level science courses. Working in the environmental field, especially in Indian Country, requires a good understanding of the political environment. For this reason second year includes courses on the American political system and right rights/treaties of Indian Tribes. Course names such as “Creation of Earth and Sun” reflects the foundational approach to courses throughout the program, presentation of two worldviews. In this case Western organic chemistry and Native cosmology related to creation, energy and life. In the second year BSNES bound students will be taking classes along with non-BSNES bound students. This provides more flexibility and cost effectiveness for the institution. Wherever possible students will be supported through the following programming:

- Extra-curricular enrichment activities including guest speakers in Native and environmental issues, environmental field trips, local/regional/national environmental conferences and AISES activities.
- Involvement of BSNES students in environmental research or community service project being carried out on the Lummi campus or at Tribal environmental departments
- Quarterly seminars that will serve to integrate science and non-science course content and extra-curricular BSNES activities in the context of Native environmental issues
- Social activities for BSNES students with the intent of forming supportive relationships between students of different year classes
- A location (i.e. “Science Den”) for BSNES students where science tutoring is provided and resources are available

In the second year emphasis within chemistry and seminar course, anticipated to be filled with mainly BSNES students, will be place upon increasing the students’ commitment to take responsibility for own learning. Although lectures will still be a prominent component, students will increasingly be required to learn information on their own (in class and out

of class) and use time with faculty and fellow students for clarification, interpretation, analysis and integration (natural sciences, social sciences, culture etc.). Case studies now being developed in a joint project with the Evergreen State College will be used.

In the 2005/2006 academic year the College developed, through an NSF award, a series of chemistry labs that can be delivered at a distance. Students can do these kit-based labs alone or with the assistance of extension site personnel. During the 2006/2007 academic year the Lummi and extension site faculty will refine this for use with ITV delivery in 2007/2008. The faculty will also investigate the possibility of using intensive lab weekends as a delivery mode for extension site (and possibly Lummi campus) students.

During each quarter of the second year a seminar will be used to help students integrate social and natural science course content in the context of culture and Native communities. We intend to use this time for special sessions such as lectures by elders, Indian scientists and scholars as well as field trips and ceremony.

Third Year

To ensure that students have the knowledge, skills and diligence to successfully complete the BSNE program and because we anticipate that students will transfer into the BSNE from different institutions we want to make sure that students have completed the following of prerequisite courses:

- College English (5 credits)
- College Algebra (5 credits)
- Basic Statistics (5 credits)
- College Chemistry for science majors (15 credits)
- College Biology (5 credits)
- College Geology or Physical Geography (5 credits)
- Native American History (5 credits)
- American Political System (5 credits)

Third year courses will build upon basic knowledge in chemistry, biology geology and math. Courses within each quarter have been selected to emphasize connections between these fields both from a scientific perspective and a Native holistic view (e.g. Botany/Cell Biology, Ecology/economics). In each of the quarters a seminar will assist the students in the integration of knowledge within these courses. The spring quarter is designed to give students an opportunity to learn and apply research methods and field skills in posing and answering basic environmental questions. GIS/GPS will be used as a valuable tool in this regard.

Since the goal of the program is to support Tribal communities it is vital that all courses reflect this. Within the curriculum for each course will be content related to the subjects applicability to Tribal communities and culture. This will be reinforced in lecture, field/lab activities, guest lectures as well as extra-curriculum activities such as guest speaker series, field trips and community services activities. All sciences courses will make connections between “Western Perspectives” and “Traditional Ecologic

Knowledge". Additionally, the curriculum of these courses will make connections between environmental research and extension being carried out at NWIC. Students during this year will also be able to complete some of their humanities courses required for graduation.

Special emphasis will be placed upon the utilization of mathematics, including statistics, in answering questions. This will particularly come to play in ecology, economics, hydrology and field methods courses.

Fourth Year

The intent of the last year of the BSNE is to 1) allow students to deepen their knowledge in the environmental sciences in regard to specific ecosystems, 2) provide students with specific knowledge and skills necessary to manage environmental projects and 3) allow students the flexibility to take elective courses in areas of interest such as courses related to the ecosystems of their reservation and usual and accustomed areas.

Because we anticipate admission of students from throughout the Pacific Northwest and possibly the Nation, we feel that it is important that students have knowledge of the particular ecosystem(s) in their home territory along with some of the cultural knowledge. Most of the Tribes of the Pacific Northwest have both aquatic and forest ecosystems. For this reason students will take these ecology courses in the fall term. This will allow for content integration and within courses, field/lab exercises and in seminar.

The ability to formulate, plan and manage environmental projects, use of statistics, write technical and scientific reports/proposals, and present and support ideas/scientific conclusion were all desired high priority attributes as expressed by those in the Tribal dialogues. For this reason courses in these subjects have been added to the fourth year. Importantly, a capstone project, preferably in small groups, will be required of all BSNE students. It is our hope that this project builds upon the student's internship experiences (see below). Capstone projects will reflect the complexity of Tribal environmental issues and will require that the student's project have cultural, economic as well as scientific components.

Involving Student in Research

The excitement and challenge of the environmental sciences is in formulating questions and carrying out scientific inquiry. For this reason we hope on involving BSNE students early in research being carried out on NWIC campuses and in Tribal communities and throughout their years in the program. As Land Grant Colleges and through the President's Executive Order to Federal Government Agencies an extensive array of research assistantships, internships and fellowships are available to both our students and faculty. As Tribal Colleges in general and NWIC in particular move further in integration of education and research we feel that this will greatly increase the quality of science education.

In recent years the U.S. scientific community has begun dialogues with Tribal elders, scientists and science educators on the integration of Traditional Ecological Knowledge

and Western Science. NWIC faculty has made several presentations at National conferences on this subject (i.e. AAAS, AISES). Additionally, within the Tribal College (i.e. 34 members of the American Indian Higher Education Consortium (AIHEC)) several meetings have been held in order to discuss the development of TCU based research. One of AIHEC's five science strategic goals is to "build capacity in the TCUs to develop and implement research projects and programs". This includes:

- Involve students in participatory action research.
- Use research to develop knowledge for economic development.
- Connect research with the curriculum and community action.
- Make research and development locally relevant.
- Develop resources to support research.
- Provide faculty development for research.
- Use research to excite students and promote learning.

NWIC fully subscribes to these goals/objectives in the further development of research and education.

NWIC has a substantial amount of experience in the development and implementation of environmental research. The environmental sciences along with health are top priorities for research in Pacific Northwest Tribal communities. Therefore, through our research initiatives, joint projects with Tribal environmental departments and sponsored research opportunities with partners in academia, the private sector and government we intend to provide opportunities for students to be involved in research experiences in their second, third and fourth years at increasing levels of participation both in the academic year and summer.

Enrichment and Cultural Components

The interface between Western science and thought with Native American traditional knowledge and worldviews will be a continuous theme within all BSNEs courses. We will embrace education of the whole person and topics of integrity, ceremony, stories, spirituality, family, community, language, traditions, culture, history, sovereignty and song will be a part of each course. The program will also rely on out of class activities, some of which are associated with BSNEs courses (i.e. field trips, guest lectures, visits with elders/leaders) and others that will be associated with campus-wide activities but an essential part of the BSNEs program (e.g. guest lecture series, campus-wide ceremonies, cultural gatherings). NWIC has over the past years increased this extra-curricular component, bring visiting scholars, elders, scientists artists and leaders, Native and non-Native, from throughout the world.

Faculty professional development related to culture is an important aspect of curriculum development and program implementation. This process has been on going for some time, will intensify with curriculum development and continue as the program is implemented. Sharon Kinley, Faculty and Director of the Coast Institute will be our guide

and a resource/conduit for our BSNEs faculty who are mainly non-Native. Additional resources will be drawn from relationships throughout the native community.

Cultural enrichment will not only take place on campus. Students will be encouraged to take part in Native American and First Nations (Canada) activities especially those that involve environmental sciences (e.g. American Indian Science and Engineering Society conferences, Native American Fish and Wildlife Society, Society for the Advancement of Chicanos and Native American in Science). In cases where students choose to do their internships with Tribal professionals, the integration of culture and Tribal environmental issues will be a prominent aspect of their projects.

Dealing with Stop-out and Drop-in

The program course matrix and sequence of courses is based upon the assumption that students will enter the program as full time students, that they will require some remedial education especially in math and that they will precede through the program as full time student graduating in 4 years.

Although the structure of the program is based upon these assumptions we know from past experience that there will be a large percentage of students who will not fit this model. NWIC science faculty has become quite adept at working with students who for a variety of reasons progress through a program at different rates. Often students must “stop-out” in order to deal with family, personal or financial issues and then return.

Because of our low faculty/student ratio, engagement of Student Services staff and support of our extension site employees we intent on working closely with students who must “stop-out” or reduce their academic loads. We intend on utilizing academic advising, student financial support, independent learning, online instruction, extension site faculty and mentoring to help students get back on track.

Courses and credits

The BSNEs Course Matrix (see appendix) provides a listing of courses by academic quarter including credits provided.

How Program Fits with Institutional General University Requirements

The BSNEs as described in the course matrix provides all credits required in NWIC General Direct Transfer Degree. The table below summarizes this information.

Academic Distribution

	Direct Transfer Requirement	BSNEs Credits
Communication Skills	14	14
Quantitative Skills	5	13

Humanities	15	15
Social Sciences	15	23
Native American Studies (counts in 1+ areas)	20	23
Student Success	7	7
Transferable Electives	19	19
Natural Sciences	15	72

The program has been designed to give students the maximum flexibility, allowing them to transfer to another institution with the DTD.

Descriptive Information of the Educational Offerings

Courses will be modified this spring and summer, increasing the cultural content and integration. Course names, numbers and descriptions may be changed to reflect this. The BSNES Course Matrix provides the new names of courses but references the old course name and number. The appendix provides course description for these courses.

Evidence of Approval

All courses and programs developed for this program shall be approved through the College's regular approval process requiring review and action of the Curriculum Committee. New programs further require the support of the President and official approval by the Board of Trustees.

4) PLANNING

Evidence of Need for Change

As indicated above, the BSNES is in keeping with the present philosophy, mission and goals of NWIC. That educational philosophy is based upon the belief that the opportunity for post-secondary education has strong benefits for both the individual and community when provided within the Native American community. Further, Northwest Indian College believes that self awareness is an important foundation of higher education and that it should be rooted in a study of Native American culture, values, and history.

Northwest Indian College has long recognized that a culturally based education increases Native American students' abilities to accomplish their educational goals. For many years, Northwest Indian College has recognized the need to develop well planned programs at the baccalaureate level that offer Native American students a high-quality alternative to the traditional educational institutions. This need was highly apparent in meetings with the Tribal members, Tribal administrators, Tribal elders, the College's Board of Trustees, students, and former students who had left their respective reservations to obtain education in traditional post-secondary settings.

Support for the baccalaureate degree program development at Tribal Colleges also came from a national study by the Carnegie Foundation Center for The Advancement of Teaching entitled Tribal Colleges: Shaping the Future of Native America supported many of

these observations. This report states: "During our visits it became clear that the western strategies for teaching are not always the best way in Indian country." Utilizing alternative teaching styles, including cultural practices in the curriculum, and close ties to the surrounding Indian community, are some of the features cited in the Carnegie report.

We feel that traditional ecological knowledge has great value not only to Indigenous communities but also to society in general. Incorporating traditional Native American cultural background and knowledge into a program requires acknowledgement of the importance of Native American culture. Too frequently, it has been cast in an idealistic or romantic light that undermines its relevancy in the scientific world. The latter often treats it as simplistic nature worship or naive reliance on the forces of nature. In reality, there is a long-standing, well-developed base of natural history, botany, ethno-pharmacology, forestry, fisheries, biology, ecology, geology, and other scientific disciplines transferred by elders through traditional means. We feel that Tribal Colleges are obvious places for discussions and scholarship related to TEK and its significance to Western science and society at large. We hope that we can create an atmosphere of openness and respect where these important activities can take place.

We feel that through this program NWIC can honor the value of both Western and Indigenous traditions of observation, inquiry and problem solving. Providing a curriculum based on the knowledge, pedagogy, and research from Native American cultures, BSNES will prepare students to protect and responsibly utilize the unique cultural and natural resources of Native American tribes. It will also support the continued growth and development of Native American communities and their economies. Should graduates be employed by non-Tribal organizations, it will serve to develop effective advocates for Native Americans in government, academia and the private sector.

Environmental science is a particularly appropriate discipline with which to begin Northwest Indian College's baccalaureate degree program. All of the various Tribes supported by the Northwest Indian College are dependent upon the wise utilization and management of natural resources for their subsistence, economic well-being and development. The economies of Northwest tribes have always been based upon the abundance of plants and animals in the surrounding lands and waters.

In the 1800s and for the better part of the 1900s Native Americans ability to provide for their families and communities was continually eroded. This is an all too familiar tragic story. However, in recent years that trend has begun to change. In 1974 the U.S. Federal courts, through the Boldt Decision allocated 50% of the salmon catch to Indian fishers. A more recent federal court decision determined that the Washington State Tribes were also entitled to 50% of the shellfish harvest in their usual and customary tidal waters. Co-management of Pacific Northwest natural resources is becoming increasingly common.

A concern to both Native peoples and the federal government is management of Native American lands that comprise approximately 60 million acres (roughly the size of the state of Wyoming). These tribal lands contain major deposits of coal, oil, gas, uranium, valuable forest, woodlands, fertile farming lands, and important rangelands. Tribal lands

also provide recreational opportunities, significant wildlife, and extensive fisheries, both marine and freshwater. Faced with the complex task of managing these varied resources, Tribal governments require increasingly well-trained Native Americans with a strong cultural background and expertise in broad areas of environmental sciences.

Each of the over 40 Northwest Tribes has fisheries and natural resources departments to assist in the management of their tribal resources. Predominantly, non-Indians occupy the professional positions within these departments. Even the Northwest Indian Fisheries Commission, formed by the various tribes in a joint effort to develop meaningful research, hatchery management, fish health, and governmental representation has very few Native American professionals on its staff. In all the Tribal dialogues held this fall, participants strongly indicated that there was a large unmet need for Native American environmental scientists. This is further exacerbated by projected retirements of non-Indian Tribal scientists in the next 10 to 20 years. At this point, no mainstream colleges have successfully provided substantial numbers of Indian environmental professionals for in Tribal natural resources departments. The Northwest Indian College proposes to address this problem.

In addition to graduates pursuing employment with Tribes we anticipate that BSNES graduates will also seek employment with Native environmental organizations, governmental agencies and private sector companies. Dialogue participants felt that this also had value to Native communities who interface with these entities. We see these graduates playing an important role as liaisons and ambassadors. Often Native professionals work for years outside of the Tribal arena and then return home. This also benefits Tribal communities by bring back that expertise and understanding of different perspectives and priorities.

Should graduates seek employment outside of the Tribal arena, job prospects are very good for the next 10 years at least. Overall in the U.S., employment of environmental scientists is expected to grow about as fast as the average for all occupations through 2014, while employment of hydrologists should much faster than average. Job growth in Washington, Oregon and Idaho is projected by State governments to grow in most cases by at least 1.5% per year (see Appendix for U.S. and State government projections).

Procedures Used in Arriving at the Decision to Change

Guided initially by the mission, strategic initiatives and goals outlined in the NWIC Strategic Plan as indicated above, the College proceeded with a series of activities indicated in the BSNES Development Timeline (see appendix).

In January 2005 a full-day science faculty and research staff retreat was held in order to begin to plan for the next 5-year period. As a result of this retreat the faculty recommended proceeding with the development of a Bachelor degree that would integrate research and education, provide “hands-on” inquiry based learning and identify focus areas (to be determined). The faculty recommended that background research be done on meeting the needs of Tribes and the role of distance learning.

In March 2006 another science faculty full-day retreat was held to further refine the concept of the Bachelor degree program. The intent of the meeting was to define a general framework of a science Bachelor degree which the faculty felt would be suited to the needs of the Tribes and which fit with the strengths of the institution. They recommended that the degree be in the area of Native Environmental Science providing graduates with technical skills necessary to work for Tribal environmental department but also allowing them to transfer to graduate studies with either professional experience or some further study.

In July 2006 a decision was made by the College Board of Trustees to proceed with a feasibility study to determine the need, structure and content of a Bachelor degree in environmental science.

Since the mission of the college is to serve the Tribes of the Pacific Northwest it was important to seek input early from these main stakeholders. NWIC hosted a series of 2-hour dialogues at the Yakama, Nez Perce, Colville and Coeur d'Alene Nations. At Colville and Nez Perce, where NWIC has an extension site, Site Managers organized the event and invited potential attendees. At Yakama and Coeur d'Alene a Tribal environmental manager (one being a NWIC Alumnus) made these arrangements. Dialogue participants included Elders, Tribal Council members, Tribal environmental professionals and technicians, Tribal educators, Native environmental graduate students, NWIC college students and community members. Attendance at each event was between 20 and 30. Each dialogue began with a 15-minute presentation of the general intent of an environmental science Bachelor degree program followed by open discussion among attendees. A summary of the dialogues is provided in the appendix.

In addition to these events, a dialogue was held at the National Forum on Tribal Environmental Science hosted by the Quinault Nations, a 4-day event attended by predominately Native American Tribal environmental personnel. Although participants were from throughout the Nation, a high percentage of attendees were from Western Washington and Oregon. This meeting together with input from the Northwest Indian Fisheries Commission (representing all Western Washington Tribes) provided a good balance to "eastside" dialogues. An online survey was also implemented which allowed participants (and anyone wishing to complete the survey) to provide further and/or more in-depth input.

Concurrent with dialogue activities the science faculty met monthly to discuss initial dialogue/meeting/survey input and to begin to develop the program structure and content. Faculty capacity, facilities, distance learning, pedagogy, course sequencing, professional development and many other topics were discussed in-detail. Extension site science faculty were also involved in these meeting via distance learning technologies. Also during this period pertinent information was collected including student alumni survey results, community survey results, Lummi Nation recommendations for environmental education/training and employment projections.

NWIC is fortunate in having many organization partners. Throughout this period discussions were being held with a variety of partners regarding ways in which they could support the BSNES. Huxley College of the Environment and Fairhaven College both at Western Washington University, University of Washington's Friday Harbor Laboratory and the College of Environmental Resources and the Evergreen State College will support this program. The National Science Foundation, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration and the Environmental Protection Agency have provided substantial support for sciences, both financially and by providing expertise. We anticipate further assistance for the BSNES. The appendix contains a listing of partners and significant awards in support of NWIC sciences.

Since the BSNES development and implementation is going to be carried out by not only science faculty but faculty and staff from many areas of NWIC it was important to keep all employees informed and to seek input. Whole campus meetings, including extension sites, were held December 1, 2006 and January 26, 2007 to let employees know about the development and to seek their input.

As a result of this study the decision was made in December 2006 to prepare a BSNES prospectus to be submitted to the Northwest Commission on Colleges and Universities in February 2007.

Student Clientele

In order to design course sequences and develop recruitment and student services plans it was necessary to take a close look at the demographics of our student body in terms of potential BSNES students. Of the 2005/2006 first time entering students, 81% were Native American, 61% had children of whom 72% were single parents. The age range of students was broad with 62% of students being 25 years or older. With the implementation of NWIC extension sites the numbers of students has increased generally and the percentage of total NWIC students taking classes at these sites has increased to 60% (see appendix).

In terms of academic preparation, of these first time students, approximately one-third were placed in developmental writing courses and 97% were placed into developmental math courses. Faculty at the college continues to report that a majority of incoming students have significant reading comprehension difficulties such that it affects their overall ability to learn.

We anticipate a keen interest of alumni in the BSNES based upon continued education of past graduates. Of our 329 alumni who graduated between 1990 and 2003, 105 (32%) responded to the Alumni Survey, which was conducted in 2004. Of these respondents 50% transferred to a 4-year college, 21% of the respondents have earned a BA and 5% had earned a Masters degree by 2004.

The BSNES will be open to all students entering NWIC. However, the BSNES program structure and recruitment efforts will be targeting students who wish to enter as full time

students. This does not exclude part time students. Through effective academic advising we can help these students move through the program at a rate suitable to their situation. These students may also be able to use independent learning, online courses and courses at other colleges to complete BSNES credit requirements.

Organizational Arrangements Required within the Institution to Accommodate the Change

The management of Bachelor degree programs comes under the responsibility of the Vice President of Instruction and Student Services. Since student services, recruitment, admissions and instruction all come under the VP's responsibility this arrangement will ensure these important functions are well integrated and effective. Deans responsible for each of these areas have been working for some time on BSNES development in order to make sure that all aspects of these functions support each other. This spring and summer these Deans will meet on a bi-weekly basis as we move forward in an intensive manner. Communication and coordination is also required with the Development Vice President and Facilities Vice President related to BSNES financial support and development of science facilities. Please refer to the appendix for the NWIC Organizational Chart.

Implementation and development of the BSNES will be the responsibility of the Science Director. The Director will supervise the BSNES and support further development of science research. One of NWIC strengths in the area of science is its research program. We are very fortunate that we are able to directly involve students in community-based research year round. The job description of the Science Director was developed to ensure that this occurs.

It is very important that science faculty and staff receive guidance and assistance from the stakeholders we serve and from experts in the fields of environmental science, culture and higher education. For this reason a Science Advisory Committee will be formed to provide input and to assist in the development of both education and research. Again, this structure supports the integration of research, instruction, internship programs and culture. We anticipate that membership in this committee will include elders, Tribal environmental professionals, Native scholars, scientists, representative of government agencies involved in environmental management/protection and private sector leaders. Emphasis will be placed upon Native Americans from the Pacific Northwest but may include leaders in these areas from throughout the U.S. and Canada.

In addition to structural arrangements in support of Bachelor degrees the institution is presently reviewing policy that will be impacted by implementation of Bachelor degree programs. Policy and operational changes in areas such as recruitment and student services are describe in those sections of the prospectus. Policies in these areas and others will be evaluated this spring and summer upon approval of informal candidacy.

Timetable for implementation

In September 2007 the program will implement courses at the Lummi campus at the freshman, sophomore and junior levels. Freshman and sophomore level course will be offered at all extension sites. In September 2008, all four year classes of the program will be offered at the Lummi campus in addition to freshman and sophomore classes continuing to be delivered at all extension sites. NWIC is presently investigating the feasibility of delivering junior level course at selected extension sites in 2007 and senior level in 2008.

	Lummi Campus	All Extension Sites	Possible Pilot Extension Sites (Investigating feasibility)	Possible Second Piloted Extension Sites (Investigating feasibility)
Fall 2007	Fr, So, Jr levels	Fr, So	Fr, So, Jr levels	Fr, So
Fall 2008	Fr, So, Jr, Sr levels	“ “	Fr, So, Jr, Sr levels	Fr, So, Jr levels
Fall 2009	“ “ “	“ “	“ “ “	Fr, So, Jr, Sr levels
Fall 2010	“ “ “	“ “	“ “ “	“ “ “

NWIC is also investigating another possible model for serving students from extension site reservations. Based on the course matrix it seems the third year will be most difficult to deliver via distance learning. During the fourth year students are specializing and courses required are easier to be delivered by Tribal employees. Junior year science courses will be more difficult for Tribal employees. For these reasons one possibility is:

- First and second year courses offered at Lummi and all extension site beginning in September 2007
- Third year courses offered only at the Lummi campus beginning September 2007
- Fourth year courses offered at Lummi campus (Sept. 2008) and pilot extension site(s) beginning Sept. 2008 or 2009
- Additional Fourth year extension programs could be phased in over time

Please refer to the BSNES Development Timeline for a detailed description of the preparation activities to take place during spring and summer of 2007. During the 2007/2008 academic year curriculum development, partnership formation (especially with Tribes), development of the internship program, purchase of needed equipment, supplies and books, recruitment, student support, professional development and resource acquisition will continue. The development of junior and senior level distance learning

courses and activities at the sites will be a significant activity should the college commit to this.

Of particular importance are evaluation processes. With any new program it is very important to continuously analyze the effectiveness of the program in terms of the goals and objectives laid-out in this document, especially in the initial years. The BSNES faculty, Student Services staff, Recruitment/Admission staff and extension site personnel will all be involved in this process along with the Institutional Research Specialist and the Science Director.

5) BUDGET

Below is a description of institutional financial support reallocated to accommodate the BSNES and budgetary/financial implications for entire institution in the first 3 years of the program. Appendix J contains detailed financial projections and appendix K contains the most recent IPEDS Financial Report.

Revenue

The primary sources of revenue to sustain the growth of the college will come from tuition and unrestricted funds from the BIA Tribal College & University allocation. The current tuition rate is \$880 per quarter (\$2,646/year) for full-time resident students. The BIA allocation is currently \$5,100 per year for full-time students enrolled in a federally recognized tribe. The revenue projection from tuition and BIA funds is based on a minimum increase of 60-80 new FTE students per year. The current approved indirect cost rate for restricted grants is 53% of the personnel budget. Indirect cost revenue is used for operational costs. Other sources of revenue may come from the Northwest Indian College Foundation for student scholarships, endowed faculty, and facilities maintenance endowment. There are ample grant opportunities for tribal colleges and universities for sponsorship of science programs. The National Science Foundation, Department of Defense and United States Department of Agriculture for example have designated funds specifically for Tribal Colleges. See the chart below for specific examples of grant funds awarded to Northwest Indian College.

Federal and private grants have been awarded that support the capacity building of the college:

Source of Funds	Description	Amount	Period
Title III-Development	Assist in the development of 4-year degree program	\$500,000 per year 5 years	10-1-06 to 9-30-10
USDA Educational Equity	Develop Curriculum for 4-year Science Degree	\$80,000 per year 5 years	7/06-6/10
Bill and Melinda Gates Foundation	Challenge Grant for Distance Learning-supports development of academic programs at	\$1,000,000 over 3 year period	7/05-6/08

	extended campus locations		
USDA-Endowment	Science projects	\$100,000/year	On-going

It is anticipated that we will succeed in obtaining grants for equipment to meet the expanding needs of the students and specifically the science program. The existing science labs already have been upgraded with new science lab equipment.

Expenditures

Instruction

A five percent total budget increase per year is projected. The existing Science and Math faculty at Northwest Indian College are qualified and are willing to teach upper division courses. No new science faculty needs to be hired. However, as the numbers of students increase, at least two of the existing science faculty will need to be released from teaching lower division courses and new full-time or part-time faculty will be needed to replace them. During the first four years of offering the Bachelor of Science in Native Environmental Science program, intensive assessment will occur and effort to improve the program will be supported and faculty will be given adequate time in their workload for research and development for the purpose of improving their teaching to maximize student success.

Library/Information Technology

With the addition of resident housing and the addition of the four-year program the library will need to extend its hours into the evening. Institutional funds will be allocated to increase the number of library staff by 1 FTE. A combination of institutional funds and grant funds will be used to increase the library resources to accommodate the needs of the new program of study. Grant funds will be used to increase accessibility to computers and Internet and connectivity to interactive distance learning instruction and research. Institutional funds to support the expanded library and technology services are included in the projected budget.

Student Services

Institution funds will be allocated to add one additional full-time recruiter to assist in implementing the recruiting plans to reach the specific goals for the BSNES program. The Title III Grant will sponsor the upgrade Management Information System; development of policies and procedures for 4-yr admissions, enrollment services, financial aid, and advising. It will also add one additional full-time Institutional Research position to assess the effectiveness of the academic programs in support of the college's continuous improvement plan. Institutional funds will be committed to support recruitment, retention, and advertising and marketing efforts.

The previous Title III grant provided the technology and support to begin implementing on-line registration and on-line advising effective fall quarter 2007. Student housing and

childcare will be available on the main campus for the first time in fall of 2007. The improvements in the physical resources will allow the college to accommodate between 50 to 100 new students during in the 2007-2008 academic year.

Overall, the additional revenue from tuition and BIA funds allocated for Native American students will cover the general on going operating costs of the four-year program. Sponsored programs such as Title III, USDA, and other grants will support the initial costs associated with developing a new program.

Institutional Support to Accommodate the Change

Northwest Indian College has adequate human resources, physical resources and financial resources to make the expansion to the four-year level feasible. Qualified Science instructors have been recruited; there is adequate seat space available in the existing classrooms and science labs and there is a master plan to build new facilities to support the program. The FY 2008, FY 2009, and FY 2010 charts provide a detailed list of projected revenue and expenses to support the BSNE program. There is a commitment by the college leadership to allocate sufficient revenue from tuition and BIA funds to support the costs of the BSNE program. There are plans in place to implement a student recruitment plan to recruit a minimum of 60 new students per year.

Budgetary and Financial Impact for the Entire College

There will be a modest increase in the overall institutional budget. However, the analysis of potential increases in revenue shows this planned growth will be manageable. Financial stability will come from ongoing recruitment of new students along with wise use of capacity building grants and fund raising efforts. The construction of new campus facilities not only accommodates the need for additional space but it is also creating a new atmosphere and positive energy on the main campus. The Bachelor of Science Native Environmental Science program will have an overall positive financial impact on the college.

6) STUDENT SERVICES

Recruitment Plan and Strategies

In spring and summer of 2007 NWIC recruitment staff with the assistance of BSNE science faculty will launch an intensive recruitment effort. The goal is to recruit/admit 20 students in each of the freshman, sophomore and junior levels for a total of 60 students. We anticipate that freshman BSNE students will emerge through the 2007/2008 academic year as they become interested in the subject and identify themselves as BSNE students.

Based upon previous retention rates of 40% we anticipate that 8 students will return the next year in each year class. Therefore recruitment targets for subsequent years are 20 freshman, and 12 students in each of the sophomore, junior and senior levels. Therefore the first of the year number of students in each class will be 20 for a total program

number of 80 students. We anticipate that some of those “new” students will be BSNES students who have stopped-out and are returning. We have used a conservative retention figure based upon past performance. However these retention rates have improved over the past years and we project that with BSNES student support efforts will result in a higher retention rate. As retention rates improve based on quality and satisfaction of the program, class size will grow accordingly and the recruitment strategy will be modified. Graduation projections often assume students will finish in 4 years, but statistics show that is not the norm at Tribal Colleges or State Universities (average approx 5 years); therefore we will track students by starting cohort year, not anticipated graduation year.

This program is to be promoted as a highly innovative Bachelor of Science degree focused on both Indigenous knowledge and Western science. We will promote this as the exciting beginning of Bachelor degree programs at NWIC. The BSNES is an excellent preparation for entry-level professional positions working as a biologist, fisheries officer, forester, natural resource officer, pollution protection officer, water/groundwater officer in Tribal government, Federal/State agencies, and other organizations dealing with Tribal environmental issues. The program will also prepare students for environmental careers not dealing with Tribal issues. Other students may choose to complete part of the program and transfer to another institution for study related to subjects such as environmental health, science education, and biology.

We need to attract the ideal students who can make it through the course rigor in order to maintain high retention rates. Recruiter will be seeking students with the following:

Freshmen ideally should:

- Have a strong interest in science and/or Native environmental research
- Have taken some basic sciences in high school
- Have a desire to work in an environmental science related field, preferably within a Tribal organization
- Have had a good academic standing in high school

Sophomores ideally should have the above plus:

- Place into college-level English and Math
- Have familiarity of coursework in Native American history or culture
- Have good basic understanding in sciences

Junior students ideally should have the above plus:

- Have good academic standing in science related courses
- Have completed through college-level Math satisfactorily
- Have complete Chemistry sequence completed with 2.5 GPA
- Have strong writing skills
- Have completed ENGL 101 satisfactorily

Senior students ideally should have the above plus completed the following courses:

- cell biology, botany, ecology and zoology
- geology or physical geography

- Statistics
- Economics, American Political System and a course of Native American legal/political issues

In order to be efficient and effective in our recruitment efforts we will be targeting the following people:

- Current NWIC students in science field
 - 27 prospective graduates in Native studies or General Direct transfer for winter and spring 2007 (number expected to increase spring quarter)
- Former NWIC students and graduates, especially TENRM
 - 17 TENRM graduates
 - 3 Life Sciences graduates
 - 114 DTA graduates in the last 5 years
 - 14 Native American Studies AAS graduates in the last 3 years
- Current NWIC employees interested in further education
 - 5 from Lummi campus
- Students from other Tribal Colleges and community colleges with two-year programs
 - Whatcom Community College
 - Skagit Valley College
 - Blackfeet Community College
 - Chief Dull Knife College
 - Fort Belknap College
 - Fort Peck Community College
 - Ilisagvik College
 - Little Big Horn College
 - Stone Child College
- Recent high school graduates (Tribal schools or schools with high Native populations)
 - Inchelium Alternative School (grades 9-12)
 - Wellpinit Alliance High School (grades 9-12)
 - Chief Leschi Schools (K-12)
 - Heritage School (grades 9-12)
 - Taholah High School (grades 9-12)
 - Wellpinit High School (grades 9-12)
 - Quileute Tribal School (K-12)
 - Lummi High School (9-12)
- Current high school students (Tribal schools or schools with high Native populations)
 - Inchelium Alternative School (77 Native students)
 - Wellpinit Alliance High School (112 Native students)
 - Chief Leschi School (703 Native students)
 - Heritage School (38 Native students)
 - Taholah High School (74 Native students)
 - Wellpinit High School (91 Native students)

- Quileute Tribal School (50 Native students)
- As well as area schools such as Ferndale and Bellingham High Schools
- Adults working in tribal environments fields (fisheries, ecology, etc)
 - Surveys held at 8 major sites in the Northwest region

We will be seeking the assistance of the following people in identifying potential students:

- Managers of Tribal, State and Federal environmental departments
- Tribal education coordinators
- Participants in BSNE dialogues
- Representatives of Native American environmental organizations
- Tribal community and family members

Although we will publicize the program throughout the U.S. and Canada efforts will emphasize:

- U.S. Pacific Northwest (Washington, Oregon and Idaho)
- British Columbia, Canada
- Alaska

Marketing will emphasize the Tribal content, student support, innovative delivery, learning community dynamics, hands-on learning, ties to Tribal communities, scholarships and internships. We will use the following strategies:

- Booths at Pow Wow and community events
- Booths at reservation meeting points (e.g. main store, post office, casino)
- Presentation to Tribal government including environmental, cultural and educational
- Presentations at Tribal environmental conferences and workshops
- Fliers with response cards
- Visits to colleges, high schools, tribal environmental organizations
- Presentations/open houses at NWIC and via ITV at sites
- Postcards/letters to grads/tribal members
- Host “College Planning Night” on campuses
- With promotion of scholarship opportunities
- Ads in Tribal newspapers, magazines
- Articles in local papers
- Interviews and ads on local and national radio
- Interviews and spots on local and regional television
- Develop promotional CD for wide distribution
- Develop promotional fliers, posters, tri-folds and publications for distribution
- Mass mail: post cards with return postage for interest
- Announcements on related websites
- Group emails

Student Services Plan

The Student Services Department focuses on student success and provides comprehensive services and resources to the NWIC student in the form of personal and academic advising, career services, transfer guidance, placement testing, tutoring, mentoring, student clubs, curricular and co-curricular enrichment activities, competitive and intramural athletics, residential housing and assistance in finding off-campus housing and daycare. Lummi based staff as well as extension Site Managers and Instructional Assistants provides these services.

Student Services staff recognize that students respond more readily when they have built a strong relationship with their advisors. To provide services to students to prepare for and successfully achieve a baccalaureate level education our current advisors will require additional training in the academic, transfer, and career areas in general and in the natural sciences in particular. Academic advisors will need to intimately know the BSNE program to assist students in making appropriate course selection, set educational goals, and track progress. Our intention is to engage both a Student Service advisor and a science faculty advisor/mentor in support of each BSNE student. The latter would provide advisement related to science careers and academic pathways in addition to mentoring the student in research/field experiences. They will be encouraging students to continue their education with a masters program, planning a career path and job placement. Our seniors will need preparation for the GRE. Since a summer internship will be part of the program and because other optional internship and assistantship opportunities will be available to students, Student Service staff along with science faculty will work to ensure that placements are appropriate and supervisors prepared. The internship supervisor is the key element for students to increase their learning capacity. We anticipate carrying out these professional development activities for Student Service staff and science faculty during spring quarter of 2007 and again in fall before students arrive.

Continued education to the four-year level will challenge our current students and graduates. Increasing our support in the area of tutoring will be necessary. The subjects of English and mathematics have the highest tutor demand. An increased demand for tutoring is anticipated in these areas as well as all natural science areas. Students will require hands on labs with prepared tutors. We hope to engage BSNE juniors and senior as peer-tutors as appropriate.

A student achieving his or her higher education goal is more likely when services are provided that minimize the personal barriers that prevent focusing on their academic path. The student services staff will provide our students opportunity to grow and overcome personal barriers by giving personal support and advocacy on campus and in the community. The most prevalent issues for Tribal College students are transportation, daycare, and financial burdens. Student Services staff will work with students on an individual basis to help them plan to circumvent these barriers. When their basic needs

are met we will work with them on creating new memberships within the college community. This is achieved through club activities, athletics, and residential housing.

Expanding our scope to include junior and senior level students will affect the Student Services community-building programming as the students interests are focused on their major. We will provide a program specific student orientation and infuse opportunity for engagement within the Tribal community in ongoing activities. There is presently an American Indian Science and Engineering Society Chapter at NWIC. We will need to be prepared to offer student club or organization support for their focus of study. Events will include presentations specific to the interest group. Each year members have attended the national conference. We hope that with the BSNES on-campus activities with this chapter will increase.

Our athletic department will have the opportunity to expand to the four-year level. Students will have an opportunity for extended playing time from two years to four. The financial need for the program will increase substantially.

The residential housing staff will need preparation to support the efforts of the bachelor program. If students are required to attend on campus courses we will prioritize our housing admissions to accommodate the housing need of our bachelors program. We anticipate that a percentage of our BSNES students from other areas will have children. For this reason Student Service is prepared to assist them in finding affordable housing. Access to our day care will be facilitated through support in identifying financial resources.

Financial aid to students is critical, 75% of our students receive Pell and other forms of assistance. Student Services will work closely with Recruitment and Admissions staff in helping students identify and apply for financial aid as soon as possible. Science faculty and Financial Aid staff have already begun to identify scholarship funds in support of BSNES students. As soon as informal candidacy is provided, NWIC will seek approval to provide financial aid at the junior and senior levels. Policies related to upper division aid will be developed at that time.

To effectively provide services to junior and senior level students Student Services will need to increase their capacity in all program areas, however, the benefits of drawing on the experience of these students is tremendous. The upper classmen will have developmental skills essential for peer mentoring, residential assistance, advanced work-study positions, event planning, and student leadership roles. They will be a resource to help students succeed in their classes and achieve their educational goals.

Student Services staff will also assist students with non-academic needs such as financial aid application and securing housing. In the event the summer foundation activity is offered we will prepare for an increased number of students during an intended vacant time within our housing facilities.

7) PHYSICAL FACILITIES

Critical to the development of higher education programs is the plan for building a college physical structure that provides a place that is significant to the students' education, research facilities that support the programs, and a place that can be called home by the students.

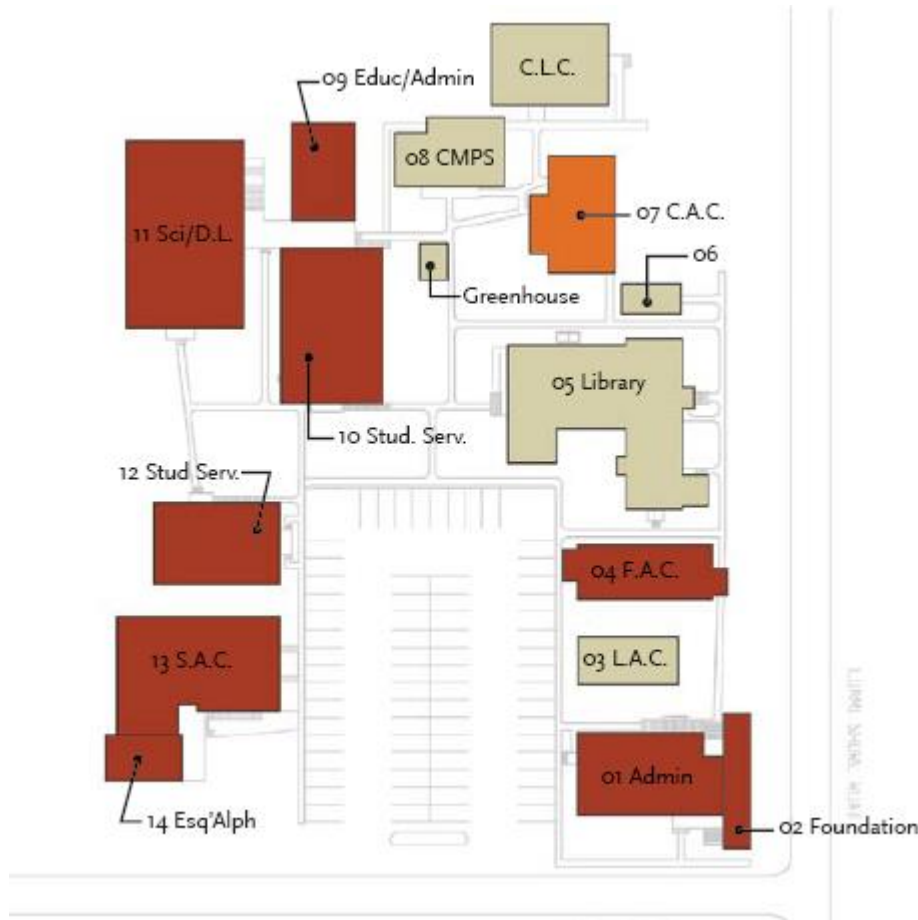
The NWIC is comprised of our main campus on the Lummi Reservation near Bellingham, Washington, and our six extension sites located throughout Washington and in Idaho (see NWIC Sites map in the appendix). Through our agreements with Pacific Northwest Tribes the college has access to Tribal facilities that may be utilized in support of the BSNES.

NWIC is also very excited about the expansion of our existing Lummi campus. The new campus development is designed to enhance the cultural aspects of Native American education, provide facilities at a central location for Tribes and create an academic environment that will positively contribute to the Native Communities it serves. Bringing together a diverse Native population with many languages and cultures will also provide NWIC with an opportunity to build on that diversity through its programs and the physical plant that is developed. The following is a description of the existing campus, status of construction and an overall view of the future campus.

NWIC Lummi Campus

The Lummi campus current facilities are comprised of 18 buildings located on 3.5 acres. Many are modular structures and a few are permanent. In 2002 the Lummi Tribe and the NWIC negotiated with Henry Kwina Allotment heirs to purchase their land adjacent to the existing Lummi campus by which the College was assigned 113 acres.

Existing NWIC Lummi Campus (3.5 acres)



Existing NWIC Buildings

- | | |
|---------------------------------------|----------------------------------|
| 1 Central Administration | 9 Academic Services EDUC |
| 2 Administrative Support Building | 10 Enrollment and Financial Aid |
| Services Bldg. IAB | |
| 3 Learning Assistance Center LAC | 11 Science Building SCI |
| 4 Faculty and Coast Salish Institute | 12 Student Services SSB |
| 5 Lummi Library LIB | 13 Student Activity Center SAC |
| 5 Library Basement/Workfirst/GED LIBB | 14 Student Union Esq'Alph |
| 5 Development Office BAC | 15 Construction Trades |
| 6 Classroom Heritage | 16 Student Residential Housing |
| 7 Cultural Arts Center CAC | 17 New Classroom/Faculty Offices |
| 7 A Cultural Learning Center CLC | 18 Bookstore/Classrooms |
| 8 Computer Bldg. C-BLDG | |

In support of the BSNE science instruction and research on the Lummi campus in three separate buildings are the following:

- Two computer labs for student use, each with 20 workstations
- One biology lab and classroom
- One chemistry/earth sciences lab and classroom

- One analytic lab
- One research lab/lab preparation room
- One science storage room for equipment, supplies and chemicals (secure)
- One greenhouse for instruction and research
- Three distance learning classrooms (an addition will be added shortly)
- Media control room for distance learning and audio-visual production
- Offices for all BS NES faculty

In addition to on-campus science facilities NWIC has an agreement with the Lummi Nation that gives the college access to science facilities on the Lummi Nation. These include:

- Shellfish Hatchery of approximately 5,000 square feet with algal cultivation lab, larval development lab, large grow-out large tanks, research lab and offices
- Fisheries lab with grow-out tanks, research lab and office
- Freshwater hatchery
- Salmon hatchery with incubation facilities and grow-out tanks
- Access to an seapond enclosure of approximately 700 acres

New Campus Development

The development and implementation of the BS NES coincides with the establishment of NWIC's new campus. This location is adjacent to the existing campus and Lummi community services. This location is most convenient for the college faculty, staff and students. There is over 200 acres of land that allows for the remainder of the land to be used for potential future tribal, college, or joint facilities, with much of it to be preserved as an ecological and cultural resource.

Construction began last year and currently two buildings are nearing completion, the Student Resident Housing building (20,000 sq. ft.) and a new classroom/faculty office building (4,250 sq.ft.). Four proposed new buildings will be under construction shortly including a Day Care Center (2,500 square feet), Center for Student Success (10,000 square feet), and a Natural Science Lab (2,000 sq. ft.). In the subsequent building phase a library technology center and the Coast Salish Institute is planned. Another classroom/faculty office building (4,250 sq. ft.) will be constructed on the Swinomish Reservation. Additional classroom and office spaces to completely move NWIC from its current temporary buildings into permanent buildings are part of the master campus phases.

Through the site analysis, the architectural team identified several design opportunities for the site. The on-site and adjacent wetlands provide a unique educational opportunity for the College and the BS NES program. In addition, the surrounding forested areas provide an expanded environmental educational opportunity as well as being an asset to cultural learning programs specific to the traditional medicinal plants and cedar growth in the area.

New Campus Map



Equipment and Supplies

NWIC sciences programming has been extremely fortunate in terms of support for the acquisition of scientific equipment. These include:

- Large collection of glassware that can support the BSNEs chemistry and biology courses
- Stereo and compound microscopes including several digitally interfaced to connected to computers
- Biology, biochemistry and genetics equipment for student labs
- Physics lab equipment with connections to computers
- Herbarium collection and equipment

- Large collection of field equipment, supplies and clothing that can support the BSNES
- 26 foot aluminum boat with cabin and oceanographic monitoring capability (accommodates eight)
- Small aluminum boat for lake and river field work
- Access to three vans, one 4x4 SUV and two trucks to transport students on field trips
- Analytical lab with 5 high-end instruments for chemical analysis (AA Spec, LC Mass Spec, GC Mass Spec, FTIR, and TOC).

Additional equipment will have to be purchased to accommodate concurrent year classes. More equipment and supplies will be required for extension sites; the amount will depend upon whether junior and/or senior level labs and field exercises will be implemented at the sites. An analysis of these needs will be done this spring.

NWIC Extension Sites

In addition to the Northwest Indian College at Lummi there are six staffed extended campus sites (see NWIC Extension Sites Map in appendix). Each of the sites offers face to face classes, as well as classes delivered from the main campus or other sites through interactive television (ITV). The ITV system utilizes the state of Washington's K-20 network to deliver high speed, high quality audio and video transmissions and provide the connections between sites. In addition, classes are also available to students through online learning along with traditional correspondence based independent learning.

Below is a list of all of the full-service sites and the number of ITV classrooms that each site has available.

Site	ITV Classrooms	Site Coordinator
Lummi (main campus)	3	Yes
Colville	2	Yes
Muckleshoot	1	Yes
Nez Perce	2	Yes
Swinomish	2	Yes
Pt. Gamble	1	Yes
Tulalip	3	Yes

Each ITV classroom is equipped with Polycom video conferencing systems that allows for video and voice communications between sites. This allows for the instructor to deliver a course from one site while students at the other sites are not only able to see and hear the instructor, but are able to interact with the instructor and other students through audio and video. In addition, the classrooms are equipped with periphery audio/visual equipment such as computer systems, DVD players, and document cameras that allow the instructor to present a wide range of educational media in the classroom.

Washington's K-20 network is a high-speed, high-capacity network that links K-12 school districts, libraries, colleges, and universities – across 476 locations in Washington. The network was started in 1996 with funds from the Washington State Legislature and is supported by the Washington State Office of the Superintendent of Public Instruction. Through an agreement, Northwest Indian College is a part of this network, which allows all of its sites to have high quality video conferencing communications with each other, or any other institution on the network.

NWIC also offers its services to locations without staff based on support of tribal program personnel and interested students including ITV courses, on-line and independent learning classes, and various outreach activities such as workshops and conferences.

8) LIBRARY AND INFORMATION RESOURCES

The 5300 square feet Lummi Library contains over 39,000 items, of which 26,845 are on the automated card catalog system, *Athena*. The automated card catalog is available online on the library's Webpage (www.nwic.edu/lummilibr). The Lummi library has five computers that patrons use to access the Internet. Audiovisual equipment for meeting and classroom use, a comprehensive vertical file, over 1500 educational videos, microfiche and reader-printers are also available to patrons. The library also has a photocopy machine, fax machine, a special collection of out of print materials on Native American topics and local Northwest history, children's library activities, computers for homework and quiet places to study.

It is important that the BSNES have access to information sources related to Native American history, culture and environmental issues. NWIC is very fortunate in having an extensive collection of approximately 9,000 Native American books that will support the BSNES. Of this collection, approximately 4,000 books are in the Special Collections area. Many items in this collection are of older, out-of-print material. There are also over 40 Native American periodicals. The library also has a collection of approximately 600 videos with a Native American theme. Approximately fifty of these videos were produced by Northwest Indian College. These materials are available for use by extension site students, faculty and staff.

The tribal college library is one of the largest tribal libraries in the region and serves as a technical assistance resource of the tribal libraries and education programs. An important factor in the College's ability to secure and maintain its accreditation with the Northwest Association of Schools and Universities has been its access to a state-of-the-art professionally staffed and operated library facility.

Over the past 15 years the college has received many Federal grants in support of sciences. Through many of these awards the college was able to augment the library science and technology collection. In the past 2 years alone we have added 600 books to that collection. Access to up-to-date scientific information is critical for both science education and research. We intend on exposing students early to scientific literature. The

College through its subscription to EBSCO Academic Search Premier provides our faculty, students, and staff, at both the Lummi campus and all extension sites, with access to an extensive collection of full-text peer-reviewed journals. This database contains indexing for more than 8,100 journals, with full text for nearly 4,500 of those titles. PDF back files to 1975 or further are available for well over one hundred journals, and searchable cited references are provided for 1,000 titles. Academic Search Premier contains unmatched full text coverage in biology, chemistry, engineering, physics, geology and other environmental sciences.

The library also has the following collection of microfiche: The Harvard Education Review 1971-1994; Educational Researcher, 1977-1994; American Indian Culture and Research Journal, Vol. 1-16; Journal of American Indian Education 1975-1994; Anthropology and Education Quarterly 1977-1994; The Native American Experience from the Pamphlets in American History collection; Native Americans of the Pacific Northwest: A Photographic Record; and Viola Garfield's Albums of Totem Pole Art.

Library facilities vary at each of the extension sites. Some sites have a full library, others only a small collection of books, journals and audio-visual materials. Students at all sites have access to the Lummi library materials via mail and to all electronic databases, including the Academic Search Premier. Computer and printers are available for students at all sites. Within the BSNE budget are funds to purchase basic cultural, scientific and environmental materials for extension site libraries/collections.

In addition to these services NWIC has a very good working relationship with Western Washington University's Wilson Library. NWIC students are able to use the library while at WWU including use of their scientific databases. The WWU University Librarian is interested in finding ways in which they can support our students including extending borrowing privileges to NWIC students. We will be seeking similar agreements with universities and colleges located near our extension sites.

9) FACULTY

Northwest Indian College is very fortunate to have a highly qualified and committed faculty who will be involved in the delivery of the BSNE program. Innovative programs such as the BSNE are a draw for academics and professionals in the fields of environmental sciences, Native American studies and integrative education. We anticipate that this program will provide teaching and research opportunities as well as creating a highly stimulating environment at the interface of worldviews. We intend to use this attraction to involve additional expertise on an adjunct and non-contractual basis.

In fall 2006 we conducted a survey of faculty to determine their qualifications and interest in terms of BSNE program content (see Appendix for details). In all except one subject area (GIS/GPS) there is at least one faculty member who is both qualified and interested in teaching that subject. In the area of GIS/GPS we have identified a Lummi Nation Tribal employee who is available to teach this subject part time.

The delivery of content from a Native American perspective is vital to the program. The TENRM and FYE programs included participation by Native adjunct faculty, Native guest lectures and visits to Tribal elders/professionals. We intend on expanding these activities. Additionally, in the next several months NWIC will make a concerted effort to engage Native American academics and professionals in program development and delivery. While BSNES faculty include three Native American faculty members, none of these people have a background in the sciences. The College will be seeking to involve such persons, ideally with experience directing an environmental department within a Tribal Nation.

Because the faculty is well prepared in the field of environmental sciences we initially intend to concentrate our professional development efforts in the areas of pedagogy, culture and Tribal issues especially those involving environmental management. Because of a national effort to increase the diversity of the scientific community there is an abundance of educational and training opportunities for faculty. In most cases the costs associated with these are covered by the hosting organization. We anticipate the following activities:

Several BSNES faculty retreats (e.g. Evergreen State College hosted program development workshop, cultural immersion retreats)

Workshops on use of case studies in environmental education (hosted by TESC, University of Buffalo)

Visits to other Native environmental academic programs

Scientific conferences including those sponsored by Native organizations (e.g. AISES, AIHEC)

Workshops and meeting sponsored by other organizations (Native, scientific, educational)

Educational/professional experience qualifications of faculty involved in BSNES Program

Phillip Allen

Ph.D. History, Washington State University (in process)

M.A. History, University of Idaho

B.S. History and Public Law, University of Idaho

Mr. Allen will support the BSNES in providing instruction in the areas Tribal culture, history and language in Eastern Washington. He will support face-to-face instruction on the Nez Perce Nation, and possibly provide assistance to other NWIC students in Eastern Washington. He will also assist the program by providing distance learning instruction to students throughout the NWIC serve area via ITV and online instruction.

Mr. Allen will be a very important resource to use both in the area of culture and distance education. Over the past years he has gained extensive experience in utilizing many modes of distance education in the delivery of college level courses. These include

interactive television, online learning, and instruction using webcam/internet, which has been implemented at NWIC, North Idaho College, Lewis and Clark College and University of Idaho. Mr. Allen will be a valuable resource to the program in the area of culture. He presently teaches class in culture and language for NWIC as well as other Tribal organizations in Eastern Washington.

Dan Burns

M.S. Environmental Science, Western Washington University
B.S. Biology, University of Victoria
B.A. Psychology, Florida State University

Dan Burns will provide leadership in the development and implementation of the program and will ensure that education and research activities at NWIC are well integrated.

Mr. Burns has recently returned to NWIC after being away 5 years. During this time he was the Tribal Program Director for the National Science Foundation and the Science Program Manager for the consortium of the 37 Tribal Colleges. Between 1991 and 2001 Mr. Burns was a faculty member, Science Department Chair and Associate Dean at NWIC. During this period he directed the development and implementation of our Tribal Environmental and Natural Resource Management Associate Degree (TENRM). Mr. Burns brings with him extensive experience in the development of science education programs, integration of research and education, program management, evaluation and instruction in biology and environmental science.

Michael Cochrane

M.S., Environmental Science, Western Washington University
B.A., Appropriate Technology, Western Washington University
A.T.A., Electronics, Skagit Valley College

Mr. Cochrane's main role in the BSNEs will be to involve students in research and provide valuable instruction in field and lab research and project management skills.

For the past 8 years Mr. Cochrane has worked at the college carrying out collaborative environmental research with Pacific Northwest Tribes. Prior to this he worked for the Lummi Tribe as one of their environmental biologist. His present work relates to marine fisheries, environmental pollution and water quality.

Dr. Brian Compton

Ph.D., Botany, University of British Columbia
M.S., Botany, Eastern Illinois University
B.S., Botany, Eastern Illinois University

Dr. Compton will be primarily providing instruction in the areas of biology and botany. His background will also allow him to teach and carry out research in the field of ethnobotany, the topic of his dissertation.

Dr. Compton has been with NWIC for approximately 6 years teaching biology, botany and general science. His background and advanced studies in Canada regarding ethnobotany of Pacific Northwest Indigenous people made him a valuable asset for NWIC. Additionally, he excelled in the use of microscopy and computer based graphic imagery for use in distance learning.

Dr. William Freeman

M.P.H., Health Services Research, University of Washington

M.D., Family Medicine, University of Washington School of Medicine,

While not expected to be a major contributor of instruction in the BSNEs we anticipate engaging Dr. Freeman in areas related to environmental health and community-based research.

Dr. Freeman is presently heading a community based diabetes research and education project involving many Tribal communities based at NWIC. For many years he served many Native American communities through the Indian Health Service.

Jere Gillespie

B.A., Social Sciences, Washington State University

Ms. Gillespie will be providing general academic support at the NWIC Colville extension site and will be a resource to students concerning environmental issues in the region. She will be particularly helpful in assisting student with writing both general and technical.

Ms. Gillespie for many years has been involved in environmental education in Central and Eastern Washington. As editor of *Columbiana*, an environmental education magazine, she has been involved in educational and political aspects of basin environmental issues.

Rick Gillespie

B.S., Biology, Portland State University

Mr. Gillespie will also be providing science support to NWIC College extension site students. Along with the Colville Site Manager, we anticipate that Mr. and Ms. Gillespie will be involved in collaborations with the Colville Tribe in delivering environmental science.

Mr. Gillespie is well acquainted with environmental issues in the region. For the past 20 years as Project Manager for the Columbia River Bioregion Education Project he has been involved in environmental education at many levels. His familiarity with the ecosystems and environmental issues will be an asset to our students.

Dr. Roberto Gonzalez Plaza

Ph.D., Molecular and Cellular Biology, Pontificia Universidad, Catolica De Chile

M.A., Biology, Brandeis University

B.A., Biology, Brandeis University

Dr. Gonzalez will instrumental in the delivery of the BSNES. Not only will he be teaching biology, environmental philosophy, biochemistry and cell biology, he will play a leading role in implementing many of the extra-curricular and collaborative Native environmental science activities such as lecture series, research opportunities and cultural field trips. Dr. Gonzalez will continue to be very active in the collaborative activities with other Tribal and scientific organizations nationally and internationally.

Dr. Gonzalez has been at NWIC for 10 years. He brings to the college his teaching and research experience in genetics, biochemistry and microbiology related to marine invertebrates. Dr. Gonzalez is the Principle Investigator on the NSF Research for Undergraduate project at NWIC. He also participated in the NASA student-faculty research project with our students at Ames Research Center in California. In the past years he has been working with local and national Tribal scholars, elders and leaders in the exciting area of epistemology, particularly the interface between Indigenous and Western worldviews. He has been invaluable in forging collaborations with academic, governmental and Tribal organizations.

Adib Jamshedi

M.S., Agronomy, Kansas State University

B.S., Agronomy, Kansas State University

Mr. Jamshedi, like many of our BSNES faculty, will be involved in instruction and student-centered research. His varied educational and professional background allows him to teach in several areas including chemistry, agronomy, soil conservation, pasture management and business. Mr. Jamshedi will also be critical in delivery of chemistry and biology labs via distance learning.

Mr. Jamshedi has been teaching sciences and business at NWIC for the past 3 years. His experience as an agronomist with the US Department of Agriculture allows him to provide our students with valuable “real world” examples of the use of science to solve environmental problems. Recently, Mr. Jamshedi has led the development of chemistry labs for distance education. We plan on using these labs for delivery of the full year chemistry series at extension sites. This past summer Mr. Jamshedi led a student-faculty team at NASA Ames Research Center in California.

Anne Marie Karlberg

Ph.D., Institutional Assessment, University of British Columbia, Expected 2007

M.S., Public Health (epidemiology/public health assessment/evaluation), Tulane Univ.

B.Ed., University of Toronto

B.Sc., University of Toronto

Although not a BSNES faculty member, Ms. Karlberg will be playing an important role in evaluation and assessment of the program.

Sharon Kinley

M.A., Anthropology, Western Washington University

B.A., Bi-Cultural Competence, Western Washington University

As Director of the Coast Salish Institute at NWIC, Ms. Kinley is extremely important for BSNES development and implementation. Ms. Kinley will be our cultural guide and will be the programs liaison with Tribal elders and cultural experts. Ms. Kinley will play major roles in curriculum development, instruction and faculty professional development.

Ms. Kinley has been involved in cultural preservation and revitalization most of her life. Having grown-up on the Lummi reservation she maintains close relationships with Tribal elders and cultural specialist throughout the region. The Coast Salish Institute that she directs is a center from preservation and revitalization of Pacific Northwest Native culture in both the U.S. and Canada. Ms. Kinley played a similar role in the development of the TENRM program.

Emma Norman

Ph.D. (candidate), International Environmental Affairs, University of British Columbia

M.S., Geography, Western Washington University

B.A., International Studies, Colby College

We anticipate involving Ms. Norman in providing an international view on environmental issues particularly related to Tribal/First Nations jurisdiction. We will also engage her in delivery of geography modules within environmental courses.

There is an international thread which passes through most of Ms. Norman's academic background. It is important that our students receive an international perspective on environment issues. Ms. Norman is particularly suited to this task. Her Ph.D. centers on Canada/U.S. trans-boundary environmental issues, particularly important to the Tribes/First Nations people of this region.

Terri Plake (part-time)

M.S., Geology, Western Washington University

B.S., Earth Science, University of California, Santa Cruz

Washington State Certification – Earth Science and General Science

Ms. Plake will play a unique role for the BSNES program, doing both college instruction in geology and hydrology, teaching at the local Tribal High School and as liaison with Western Washington University's science teaching outreach program. We anticipate further collaboration with local schools and see Ms. Plake involved.

Ms. Plake's background in the earth sciences has been very helpful for NWIC. Within the TENRM program Ms. Plake taught the earth sciences curriculum and continues to teach geology within the First Year Experience. Recently as a member of Western Washington University's outreach program to regional schools she has gained a substantial amount of experience in problem-based learning. Her experience with college, bridge and high school instruction will be valuable in our efforts to increase the number of students that move directly from high schools to NWIC.

Dick Poole

M.S., Fisheries Science, University of Missouri
B.S., Fisheries, University of Missouri

Mr. Poole will be involved in instruction in the areas of fisheries, aquaculture and marine biology. As the coordinator of NWIC's USDA award he will work to engage students in community-based research.

Mr. Poole was Director of the Lummi School of Aquaculture over 30 years ago. This school metamorphosed into the present college. Subsequently Mr. Poole led the development of the Lummi Nation's shellfish hatchery, a West Coast premier facility. Returning to NWIC in 2002, he led the National Indian Center for Marine and Environmental Research.

Doug Quinlan

M.A. Mathematics Education, University of Northern Colorado
B.S. Mathematics, University of Northern Colorado

Doug Quinlan has recently joined NWIC. He will be teaching math and statistics. He has extensive experience teaching math at the college level and has international education experience.

He also has strong experience with communications and curriculum development and 48 hours of doctoral level coursework in educational leadership.

Dr. John Rombold

Ph.D., Ecosystem Analysis, University of Washington
M.F.S., Forest Science, Yale University
B.S., Forest Management, University of California at Berkeley

Dr. Rombold will bring to the program considerable experience in terrestrial ecology, botany and forestry. He has been a NWIC faculty member doing both instruction and research since 2001. Dr. Rombold will teach in these areas as well as in general ecology and biostatistics. He will also be involved in community based environmental research involving students.

Dr. Rombold has both a strong academic background and significant experience in forestry. During several years with the Peace Corps Dr. Rombold worked in tropical forestry with Indigenous peoples in the Amazon Basin.

Rochelle Troyano

M.S. Wildlife Biology, Washington State University
B.S. Biology, Bloomsburg University of Pennsylvania

Ms. Troyano will be the main science support person at the Nez Perce extension sites both at Lapwai and Kamai. Like Mr. Allen, she will provide face-to-face instruction and will contribute to BSNES instruction via ITV and online technologies. Ms. Troyano will teach in the fields of biology, zoology and wildlife and will provide on-site science and math tutoring as well as academic advising for Nez Perce BSNES students.

Living and working in the environmental sciences in Eastern Washington Ms. Troyano, is well acquainted with the environmental issues of the area. As faculty at NWIC's Nez Perce sites she has established relationships with students and Tribal environmental personnel that will be valuable in implementing this program at a distance. We also intend on drawing upon her experience in the fields of wildlife biology and information technology.

Linda Ward

M.S., Biology, University of Guam
B.A., English, Seattle Pacific College

Like several other BSNES faculty it is anticipated that Ms. Ward will be involved in both instruction and research. Her depth in marine and aquatic biology will allow her to teach in those fields. She will also be directly involved in supervising students in research internships and assistantships.

Ms. Ward has been a faculty member for approximately 10 years. Her academic and research background is in tropical and temperate marine biology. During the past years Ms. Ward has led several environmental research projects in collaboration with the Lummi Nation. Recently, she led a student-faculty research team at the Department of Energy lab in Squim, Washington.

Ted Williams

M.A., ABS, Leadership Institute of Seattle, Bastyr University
M.S., Astronomy, University of Arizona
B.S., Astronomy, University of Michigan

Mr. Williams as Dean for Academics will be an important member of the BSNES team. Having a science background as well as being a member of the TENRM faculty team, he is very well acquainted with the needs of a developing integrative science degree program.

As a member of the NWIC faculty team from 1997 to 2004 Mr. Williams taught math and general sciences. Between 1997 and 2004 he was a member of the TENRM team that developed and implemented the Associate degree program. Mr. Williams has substantial experience in integrative curriculum design especially in a Native context.

Wayne Woods

M.A.T., Speech Education, Lewis & Clark College
B.S., Speech, Portland State University

The importance of oral communication was stressed in Tribal dialogues. Mr. Woods will be involved in teaching speech and assisting students in oral presentations and debates. Mr. Woods, as Director of the First Year Experience, will undoubtedly be deeply involved in curriculum development and coordination of the first year of the BSNES.

Mr. Woods was part of the TENRM faculty team so is very well qualified in the integration of both Native culture and oral communication in environmental programs. Later as Director of the FYE he led the development of that program which built upon the experiences of TENRM.

Wood-Trost, Lucille M

Ph.D., Human Behavior, Union Graduate School
M.S., Biology, University of Florida
B.S., Zoology, Pennsylvania State University

Although not a major member of the BSNES faculty team we anticipate that Dr. Wood-Trost, as Director of the Individualized Studies Program, will likely be working with some BSNES students who choose this mode of delivery to complete some of their credits. Dr. Wood-Trost is well suited to assist these students having both undergraduate and graduate degrees in the life sciences.

APPENDICES

- A NWIC Mission, Strategic Initiatives and Goals (excerpt of Strategic Plan)**
 - B Summary of 2006 Tribal Dialogues – Input on BSNES Design and Content**
 - C National Forum on Tribal Environmental Science:
Discussion on NWIC Four Year Environmental Science Program 09/26/2006**
 - D Institutional, Cultural and Draft BNNES Learning Outcomes**
 - E NWIC BSNES Course Matrix**
 - F BSNES Educational Offerings**
 - G Employment projection information (WA, OR, ID)**
 - H BSNES Development Timeline**
 - I Organizational Chart**
 - J BSNES Revenues/Expenditures**
 - K IPEDS Financial Report**
 - L Map of NWIC Sites in the Pacific Northwest**
 - M NWIC Curriculum Committee Approval to Proceed**
- =====

Appendix A

Northwest Indian College: Mission, Strategic Initiatives and Goal Listing (From NWIC Strategic Plan 2004 – 2009)

NOTE: The Bachelor of Science in Environmental Sciences will directly address goals highlighted in red.

Mission: Through education, Northwest Indian College promotes indigenous self-determination and knowledge.

Strategic Initiatives (4)

1) NWIC strengthens individual and tribal prosperity through excellent and culturally relevant education, research and training.

I1 G1 High Quality Academic and Vocational Programs

- 1) Offer outstanding educational programs in certificate and associate degrees.
- 2) Increase instructional services by improving distance learning and site-based access for all NWIC students.
- 3) Enhance institutional assessment directed at improved services.
- 4) Develop baccalaureate degree programs in areas of high priority to tribal communities in the NWIC service area.

I1 G2 Support for Tribal Prosperity

- 1) Promote training opportunities for vocational skills and professional development for tribal and community program employees.
- 2) Implement training opportunities that support workforce development and enterprise efforts of tribal nations.
- 3) Develop a Human Resources Inventory Database of tribal communities for economic and workforce development initiatives.
- 4) Collaborate with the Lummi Nation and other Northwest tribal nations on the implementation of NWIC's land grant and environmentally based programs and plans (including former NICMERE plans).
- 5) Form partnerships with tribal nations and community development agencies to address economic conditions of our communities.
- 6) Provide financial education services to tribal citizens.

I1 G3 Increase student participation and expand qualified College Personnel

- 1) Implement a proactive, high quality marketing and recruitment plan to attract students to NWIC.
- 2) Provide services, growth opportunities and educational content designed to empower students by increasing their cultural competencies and resiliency.
- 3) Maintain a climate of student service and support through college bridge programs, internships, mentorships and service learning opportunities.
- 4) Ensure the practice of teaching and learning at NWIC is grounded in traditional knowledge and the use of contemporary best practices.
- 5) Provide a supportive, well-funded employment environment toward retention of staff and opportunities for staff to improve academic qualifications.
- 6) Widely recruit qualified Native persons to join the College's team.
- 7) Improved entry-level academic counseling services to new and returning students.

2) NWIC increases resources to fulfill its Mission.

I2 G1 Ensure Adequate Financial Resources to Support Strategic Initiatives

- 1) Institutionalize Resource Development Planning and Processes
- 2) Ensure institutional programs and grant efforts fit the mission and goals of the College as well as tribal strategic plans.
- 3) Conduct a comprehensive campaign toward capital and operating fund acquisition.
- 4) Increase student financial aid resources through scholarships.
- 5) Improve long-term fiscal health of the College through endowments and good financial practices

3) NWIC enhances the living values of our tribal communities and embraces bringing traditional ways into living contact with contemporary society.

I3 G1 Develop Coast Salish Institute as a model for Tribal Teaching, Research and Development.

- 1) Create a climate for lifelong learning in support of tribal community initiatives and creation of cultural opportunities for students and families.
- 2) Build the organizational structures needed to support change and encourage ceremony in the College's daily life.
- 3) Develop Lummi Philosophy of Education as a guide for a healthy organizational climate and a healthy educational environment.
- 4) Collaborate with other Tribal nations on the development of tribal specific philosophies.

I3 G2 Develop core Native Studies degree, course offerings and training programs.

- 1) Promote acquisition and sharing of tribal knowledge.
- 2) Promote tribal autonomy.
- 3) Native Studies degree program central to NWIC academic programs.
- 4) Ensure voice of native people in all teaching and learning environments.
- 5) Provide for integration of tribal knowledge throughout academic and vocational programs.
- 6) Create opportunity for Native student presentations to learn appropriate presentation of native identity and knowledge.

I3 G3: Revitalize native languages through preservation, instruction and community language development.

- 1) Develop certification programs for native studies instructors.
- 2) Develop language teacher endorsement.
- 3) Implement birth to elder Lummi language programs for community and school use.
- 4) Partner with extended campus sites to develop tribally specific language programs and curricula.

4) NIWC builds sustainable tribal communities and people through promotion of healthy living, leadership development and community development.

I4 G1 Promote health and wellness opportunities at the College and with Tribal Communities.

- 1) Offer competitive and cooperative recreational and sports activities.
- 2) Promote increased access to more effective health care including mental and physical health services for College community.
- 3) Collaborate with health and wellness related programs and services to provide program specific educational services.
- 4) Offer variety of educational services in health and wellness based in cultural knowledge and literacy.

I4 G2: Provide leadership, management and board & committee training services specific to tribal needs.

- 1) Deliver a training program for board and committee service specific to tribal needs.
- 2) Provide leadership skill building opportunities for NWIC Board of Trustees and Student Leaders.
- 3) Provide a competency based managerial training program for directors and mid-level managers.

- 4) Implement an Executive Leadership Program for upper-level managers of non-profit and for-profit entities and divisions of Tribes.
- 5) Institutionalize an annual calendar of training events and professional development opportunities for NWIC staff.

I4 G3: Provide educational economic services focused of workforce development, entrepreneurship and community development.

- 1) Through a vocational advisory process, ensure appropriate, timely workforce programs and services are provided to
Tribal communities.
- 2) Provide a community based financial education program to promote financial literacy and entrepreneurship.
- 3) Provide community based strategies to support grassroots participation in decision making processes.
- 4) Support development of community based enterprise initiatives.
- 5) Provide technical assistance and training services to small businesses and home-based enterprises.
- 6) Provide job finding, workplace skills and career education services.

I4 G4 Provide culturally relevant parent and wellness education services.

- 1) Develop culturally relevant parent education curriculum.
- 2) Develop culturally relevant wellness curriculum.
- 3) Collaborate with community-based organizations to provide training and educational services.
- 4) Work with tribal communities to host timely community wellness events toward a common vision for individual and family wellness.
- 5) Provide site based parent support groups.
- 6) Provide site based wellness services during the regular academic calendar through NWIC main campus and extended campus collaboration.

Appendix B

Summary of 2006 Tribal Dialogues – Input on BSNES Design and Content

Since the mission of NWIC is to serve Pacific Northwest Tribes, dialogues were held on Tribal Nations in order to receive input on the BSES design and content. Working with a Tribal environmental manager or an NWIC Extension Site Coordinator, elders, Tribal leaders, Tribal environmental employees, prospective students, Indian education employees, NWIC extension site staff/faculty, and interested Tribal members were invited to participate. The following dialogues were held at Colville, Nez Perce, Coeur d'Alene and Yakama Nations as well as with NW Indian Fisheries Commissioners (via videoconferencing) November 13 – 20, 2006. Additionally, a dialogue was held at the National Tribal Environmental Science Forum September 26, 2006 that was attended by Tribal environmental professionals from throughout the United States.

The following document summarizes the main points provided by these participants. For detailed information refer to dialogue notes from each event. Main points in organized into 11 main areas:

- 1) Recommendation for further input
- 2) Need for Native American environmental graduates
- 3) Program emphasis: environmental sciences vs. environmental studies
- 4) Program content
- 5) Program delivery: Lummi campus and distance learning modes
- 6) Program structure
- 7) Program implementation strategy
- 8) Partnerships
- 9) Student recruitment
- 10) Student services
- 11) Internships

RECOMMENDATIONS FOR FURTHER INPUT

Contact Education Directors at PNW Tribes
Evergreen

NEED FOR NATIVE AMERICAN ENVIRONMENTAL GRADUATES

THERE ARE JOBS BOTH IN TRIBAL AND FEDERAL AREA.
THEY MAY NEED TO FIND FUNDING FOR THEIR OWN POSITIONS
THERE MAY BE SOME BARRIERS FOR YOUNG WELL TRAINED INDIANS
RETURNING HOME

Colville, Coeur d'Alene, Nez Perce and Yakima have large numbers of employees in environmental fields
Non-Indians hold many positions
Colville presently has more open position than they can fill in science
Federal employees are retiring creating opening
Are there job projections for the Tribes in sciences?
Are there barriers for graduates to get jobs on reservation? How do you overcome this?
Most federal government positions need a bachelor degree
BLM wants Indian surveyors
Wildlife and restoration people needed
Need people who are able to create their own jobs through grant writing, fund raising etc.

PROGRAM EMPHASIS: ENVIRONMENTAL SCIENCES VS. ENVIRONMENTAL STUDIES

ALL SITES PREFERRED A SCIENCE TRACT THAT PREPARED STUDENTS FOR GRAD SCHOOL
ALTHOUGH THERE IS ALSO NEED FOR A "STUDIES" OPTION
THIS COULD BE ADDRESSED THROUGH NAS DEGREE OR A MINOR

All sites visited said they wanted a "science" degree that prepares students for graduate school
Most preferable to have people with a strong science foundation in environmental policy, law and planning
Policy may be easier to acquire than sciences
Collaboration between NAS and BSES degrees could address the "studies" need
Create minor in "studies" and environmental journalism within the BSES
Recommendation: Proceed to BSES as a "science" degree
The BSES should prepare students for graduate studies in environmental sciences
Should be science with grounding in Tribal issues

PROGRAM CONTENT

MUST HAVE LOCAL CULTURE. TO BE DONE AT HOME (INTERNSHIP, PROGRAM VIA DL)?
DEVELOPMENTAL EDUCATION MUST BE PART OF STRATEGY
ALL SITES STRESS REQUIREMENT FOR ACADEMIC RIGOUR
WEAVE "HEART" INTO PROGRAM HOW? IN CLASS? OUTSIDE ACTIVITIES? COHORT? ETC.
COMMUNITY SERVICE SHOULD BE A PART OF THE BSES
COMMUNICATION SKILLS (WRITING AND ORAL) ARE VITAL
STUDENTS SHOULD DO A COMPREHENSIVE PROJECT TO BUILD PROJECT MANAGEMENT SKILLS
TIME WITH LOCAL CULTURAL PEOPLE
PROGRAM CONTENT SHOULD BE BROAD AND INTERCONNECTED
MOTIVATE STUDENTS BRING IN INDIAN LEADERS

**PROGRAM DESIGN SHOULD BE FLEXIBLE ALLOWING STUDENTS TO
SPECIALIZE OR TRANSFER**

MENTIONED AT ALL SITES:

Program should be rigorous
Program must prepare students for graduate school
Complete developmental courses as pre-requisite to next courses
Strong writing emphasis including technical, report, scientific and grant writing
Math skills are important.
Hydrology and/or watersheds
Treaty rights must be in program
Statistics both basic and bio-stats, should be applied, using environmental examples on reservations
GIS/GPS
Culture and history

MENTIONED AT MOST SITES:

Public speaking
Experimental design/research skills – environmental examples on reservations, establishing procedures,
 standardizing data, monitoring/sampling
Water law and rights
Understanding the ecosystem of student's reservation
Environmental/natural resource economics
Project management
Leadership development
Local language

MENTIONED AT ONE OR MORE SITES:

Dealing with uniqueness of cultural resources
Exposure to other cultures both Native and non-Native
Hazardous wastes
Mining impact
Solid waste management
Logging impact
Forest management
Silviculture
Range land management
Fisheries (freshwater and marine)
Toxicology with emphasis on fish
Aquaculture
Law and policy
Negotiation
Enforcement
Sustainability, economic and ecological
Alternative energy, using local resource (e.g. bio-diesel, wind, solar, etc.)

OTHER COMMENTS

Graduates should be well rounded scientists

Several people questioned whether calculus was important. If in program should have environmental examples

Work with NAS developers to make sure there is flexibility in NAS and BSES to allow a “studies” option

Credit for past work (How to you assess? Testing? Interview? Taking it but contributing to class knowledge?)

PROGRAM DELIVERY: LUMMI CAMPUS AND DISTANCE LEARNING MODES

ALL SITE WERE MOST INTERESTED IN THE PROGRAM THERE AS MUCH AS POSSIBLE

WHAT CAN BE DONE AT SITES? NWIC EXTENTION? NON-EXTENTION SITE
HOW MUCH CAN BE INITIALLY DONE?

RECRUITING PROJECTIONS IN TERMS OF DL? IN TERMS OF PT VS FULL TIME

WHAT IS THE COMMITMENT TO SITES? PNW TRIBES?

WHO IS GOING TO DO IT? ARE RESOURCES THERE TO DO IT?

CAN CULTURE ONLY BE DONE ON SITE?

CAN WE REALLY SUPPORT STUDENTS/FAMILIES AT LUMMI?

ARE WE OPEN TO HYBRID RESIDENENCE/DL OPTIONS?

There is culture shock for Indian students even going to Lummi

Students are missed or relied upon at home

Who is going to teach DL courses at sites?

Would like faculty to come to DL sites to teach for a quarter, intensive or a circuit rider,

Have students go to Lummi for block periods, summer may not be best

If there are enough students at a site could you provide faculty, TA, and or facilities?

Facilities may be a limiting factor at sites (what about a mobile classroom/lab)

Having the program at extension sites allow students to learning local ecosystem

Must look at effectiveness of online course delivery – several student stated that they do not like online

Is establishing an extension campus at Yakama a possibility?

Utilize the environment on reservation as a living lab

Support pre-college science internships at home to prepare them and provide credits or developmental education

Don’t necessarily need labs...could do field studies and site directed labs

Use university graduate student in program and pay them to teach labs at sites

Group labs so less travel to partner university and/or Lummi if applicable

PROGRAM STRUCTURE

COHORTS?

PT/FT STUDENTS

DISTANCE LEARNING (SEE ABOVE)
BLOCK SCHEDULING AT LUMMI
FLEXIBILITY (TRANSFERRING IN/OUT)

Cohort at extension sites with block labs at Lummi (funds to support time at Lummi)

PROGRAM IMPLEMENTATION STRATEGY

Phasing

Piloting

Modules

Providing extension courses to Tribal employees

Regional center to support science research on reservation (e.g. alternative energy)

Partnering with local universities in providing support for research on reservations

Let extension sites make local arrangements and agreements

NWIC will have to make agreements with university partners, articulation, credit transfer

Start with relationship building, then vision building and commitment; Tribes/site leading local initiative

Specialization, emphasis by different locations, students etc.

Assess unique characteristics of each reservation (leaving, facilities, support etc.)

Need funding but also people

PARTNERSHIPS

Do what is best for students, sometimes a NWIC student, sometimes NWIC content to other institutions

Evergreen MS in Tribal Policy and Environmental Management

Local Tribes for DL programs, release of tribal employees to teach

Qualified Tribal employees required to teach one course per year one quarter per year (their down time)

Heritage University

Local schools

Adjunct tribal faculty – honorarium?

Use of Tribal facilities e.g. labs

Eastern Washington University – Tribal fisheries program?

WSU – extension program

U of Idaho – extension program

Lewis and Clark College for Nez Perce 13 miles away

Engaging private sector contractors in education as part of Tribal contracts, build collaboration outside tribal

Basic lab needed is for chem. lab and GIS lab so what about using local college/university and Tribe

Use university graduate student in program and pay them to teach labs

Can the DL program utilize the local high school for labs?

Must have Tribal Council buy-in.

Hire Native people in program, non-Natives role is to work themselves out of job

Federal government – tying into workshop and training, do not duplicate, partners, use as faculty

Heritage offers general science degree with Tribal members

Heritage does not have specialized environmental courses (e.g. Fisheries)

STUDENT RECRUITMENT

Who are the target students?

Must acknowledge “survival mode” housing, food etc.

Part time students and/or full time?

Tribal release for tribal employees

Create an interest in sciences. Focus on local ecosystem using field hands-on activities (HS, First year)

Need NWIC recruiting at high schools with information about scholarships

Math/science camps for high school students

Need to get information on the number of potential students

How can we partner with other programs such as Americorp, TANF,

Find funding for students but they can not be in it just for the money

Education leave from Tribe important in recruiting part-time students

Support pre-college science education as low in grade level as possible

STUDENT SERVICES

“Survival mode” most important (kids, housing, food etc.)

Family housing and billeting

Priority FA for returning students

Flexible work study (e.g. half day school, half day science work study)

Emergency funds available

Field trip for prospective students to Lummi

Brochure about NWIC to sites

Provide a scholarship for students to go to Lummi for lab blocks

INTERNSHIPS

Learn applied skills

Expose to their home ecosystem

Connection with own culture

Staying at home

Student should return home each summer to acquire applied skills and local knowledge

Internships should pay enough so students can continue their education

Appendix C

National Forum on Tribal Environmental Science: Discussion on NWIC Four Year Environmental Science Program 09/26/2006

During this national conference NWIC sponsored a reception/dialogue that introduced the development of a Bachelors degree in environmental science, sought input on program goals, structure and content. There were approximately 60 attendees, mainly comprised of Native environmental personnel from Tribes and the Federal government and Native graduate students. Main points expressed are listed below:

How will the program accommodate the fact that NWIC will have students from various Tribes with diverse cultural backgrounds and traditions while at the same time existing on the Lummi Nation? How would this effect the tribal communities of the students, would they want to return to their homeland after graduation or would they not return, contributing to the “brain drain” of the various Indian Nations?

The program must be scientifically rigorous and defensible with a core foundation in “good” science, while at the same time remaining true to the traditional ways and needs of the Indian Nations. The inherent thinking that TCU’s do not produce science of the same rigor and defensibility as the main stream Universities and Colleges may be a challenge for accreditation, funding.

The program should be well rounded, incorporating Environmental Studies and Justice, as well as Federal Indian Law. The students will need the knowledge of the various laws, regulations and agencies that work with Indian Nations on Environmental issues, as well as the skills to effectively work with them (communication, reading writing, research skills etc.)

The program must also build relationships with various organizations and agencies in order to offer good networking and internship opportunities to the students. This is also essential to show the students the type of jobs that are available for them after graduation.

The program should try and work with existing networks and Universities such as the Traditionally Black Colleges and Universities for input. How have the HBCU’s evolved?

What about Distance Learning to remote sites?

What about scholarships for students?

What are our local historic environments and how can the program serve them? The program should be designed to learn about those environments that help to define the various cultures and traditional ways.

The “Native World View” should be brought back and acknowledged.

The students need role models and natives to look up to. Native Faculty?

The program needs to incorporate culture, language, customs, etc. Keep regional identity and incorporate what you have. (Salmon etc.)

Need a research/thesis component for science students w/ cultural component for benefit of Indian Nations.

Question based curriculum. Western and Native ways need to be used.

Need to prepare student to think holistically and think critically.

Appendix D

Institutional, Cultural and Draft BNNES Learning Outcomes

Existing Institutional Learning Outcomes:

Cultural (pre-novice, beginning, developing, accomplished, exemplary)

Tribal environmental issues (Tribal acquired knowledge)

Graduates who are well grounded in who they are, their sense of place, and their relationship with their Tribe and the greater society

Grounded in who they are, their sense of place related to the land, culture and history

Knowledgeable of tribal environmental history, treaties, law, regulation, justification etc.

Good understanding of basic water law with its specialization on Tribal issues

Local language

Knowledgeable of cultural management

Written Communication

Ability to write well especially related to technical writing (reports, publications, proposals, etc.)

Oral Communication

Ability to present themselves well in public

Computer Skills

Quantitative Skills

Good understanding of statistics and how to apply these to environmental questions

Able to use math (up to but not necessarily including calculus) in solving environment problems

Reading Skills

Suggested BSNE Learning Outcomes (additional to above):

Scientific and Environmental Knowledge and Skills

- Basic physical, chemical and biological
- More advanced chemical, physiological and ecological processes
- Understanding of basic watershed and hydrological processes
- Understanding and use of scientific equipment and processes
- Legal, political and economic knowledge as related to the environment
- Basic skills in GIS and GPS
- Good understanding of their local ecosystems
- Human impacts on the environment (mining, pollution/toxicology, logging, etc.)
- Basic understanding of economics and its environmental and tribal implications
- Environmental Management (Waste, forestry/silviculture, wildlife, mining, soil/range fisheries/aquaculture)
- Alternative energy
- Law, policy, negotiation, enforcement
- Sustainability: economic, cultural, ecological

Observation and Analysis

- Data and information collection, validation,
- Interrupting data, designing experiments, conducts experiments
- Ability to analyze complex, interconnected data and draw conclusions
- Have some applied skills which will allow graduates to begin working after graduation
- Able to design/implement a environmental research project (procedures, monitor/sampling, data)

Problem Solving

- To be developed

Decision Making

- To be developed

Personal/Social effectiveness

- Realistic conception of own abilities, strengths, weaknesses, knowledge and skills
- Group projects
- Have some skills in project management and leadership
- Cohort organized activities
- Heart? Integrity?

Multicultural/International Understanding

Understanding of ethics

Understanding of values of various peoples, differences and similarities

Appendix E

NWIC Bachelor of Science in Native Environmental Science Course Matrix (page 1 of 2)

Italics RED INDICATES A NEW OR MAJORLY MODIFIED COURSE

DEVELOPMENT/1ST Year (begin 2007/2008)

(Designed to fit with First Year Experience)

FALL

Developmental Math or English	3
Introduction to Successful Learning (HMDV 110) (NE)	4
Biology of Place (BIOL 104) (NSL)	5
Introduction to Native American Studies (NASD 110) (SS, NASD)	3
	15

WINTER

Elementary Algebra (MATH 98)	5
Pre-contact Native American History (HIST 111) (SS, NASD)	2
Introduction to Computers (CMPS 101) (TE)	3
Introduction to Interpersonal communications (SPCH 105) (CS)	4
	14

SPRING

Intermediate Algebra (MATH 99)	5
Post-contact Native American (HIST 112) (SS, NASD)	3
Philosophies of Natural World (PHIL 140) (HT, NASD)	5
Sky, Earth, Water and All Our Relations: Encounters in the Science (SCIE 101) (NS)	3
	16

SECOND YEAR (begin 2007/2008)

(Designed to allow TENRM grads
to be able to enter program in 3rd quarter)

FALL

Introduction to Mother Earth (GEOL 101) (NSL)	5
Building Blocks of Mother Earth (Inorganic CHEM 121) (NSL)	5
English Composition (ENGL 101) (CS)	5

	Seminar	1
		16
WINTER	Creation of Earth and Sun (Organic CHEM 122) (NSL)	5
	College Algebra (MATH 102) (NS, QS)	5
	American Political System (POLS 115) (SS)	5
	Seminar	1
		16
SPRING	Creation, energy and the gift of Life I (biochem. CHEM 123) (NSL)	5
	Rights of Indian Tribes (POLS 118) (SS, NASD)	5
	Story Telling through Numbers: Statistics (MATH 107) (NS, QS)	5
	Seminar	1
		16

NWIC Bachelor of Science in Native Environmental Science Course Matrix (page 2 of 2)

Italics/RED INDICATES A NEW OR MAJORLY MODIFIED COURSE

THIRD YEAR (begin 2007/2008)

FALL	Honoring the Gifts and Healing by Plants (botany BIOL 202) Linked with BIOL 201 (NSL)	5
	Creation, Energy and the Gift of Life II (cell BIOL 201) (NSL) Linked with BIOL 202	5
	HUM theory elective (HT, NASD)	5
	<i>Seminar 3XX</i>	1
		16
WINTER	Sustaining Healthy Communities (ECON 202) (SS)	5
	<i>We are all related: webs and cycles of Life (ecology BIOL 3XX)</i>	4
	HUM theory elective (NASD, HT)	5
	<i>Seminar 3XX</i>	1
		15

SPRING	Our Relatives; the Animals (Zoology BIOL 203) (NSL)	5
	<i>Sacred Waters ENVS 213 -> 3XX (NSL)</i>	3
	<i>Ways of Knowing: Gathering Information, Building Knowledge (Res/Field Methods 3XX)</i>	3
	<i>Story Telling through Images: graphics, cartography, remote sensing GIS/GPS ENVS 265->3XX</i>	3
	<i>Seminar 3XX</i>	1
		15
	FOURTH YEAR (begin 2008/2009)	
FALL	<i>Water Webs and Cycles: Aquatic Ecology 4XX</i>	3
	<i>Earth Webs and Cycles: Terrestrial Ecology 4XX</i>	5
	Story Telling through Numbers II (MATH 210) (NS, QS)	3
	<i>Telling Stories through Voice: Public speaking/Debate (CS)</i>	3
	<i>Seminar 4XX</i>	1
		15
WINTER	<i>Elective 4XX (Finding the Balance Phil course?)</i>	3
	<i>Telling Stories Through Words: Tech writing ENGL 201->4XX</i>	3
	<i>Capstone 4XX</i>	3
	<i>Elective 4XX</i>	3
	<i>Seminar 4XX</i>	1
		13
SPRING	<i>Webs and Cycles: Oceanography/Marine or Grassland Ecology 4XX</i>	5
	<i>Electives 4XX</i>	7
	<i>Capstone 4XX (CS)</i>	2
	<i>Seminar 4XX</i>	1
		15
SUMMER	<i>Cycles of Vision, Action and Learning (Project Management 4XX)</i>	5
	<i>Directed Studies 4XX</i>	7
		12

Appendix F

BSNES Educational Offerings

The following courses will be used as a basis in finalizing the BSNES course contents (see course matrix above). During spring and summer the BSNES faculty will enter a period of intense curriculum development. Course names, numbering, prerequisites and descriptions may change. The general content of the course will not change. New courses to be developed but indicated on the matrix are not included below.

HMDV 110 (4 CR)

INTRODUCTION TO SUCCESSFUL LEARNING

Orientation class for new students. Includes weekly support group sessions. Offers students the skills and understandings that can help them succeed in college. Required for all degree and certificate-seeking students. Writing lab required if available. (NE)

BIOL 104 (5 CR)

BIOLOGY AND NATURAL HISTORY OF PLACE

Exploration of local ecosystems viewed from the perspective of a natural resource with cultural significance. Themes may include salmon, water or cedar. Students will view the complex nature of environmental problems from disciplines such as marine and terrestrial biology, forest ecology, water, geology, economics and policy. Lab included. (NSL)

NASD 110 (3 CR)

INTRODUCTION TO NATIVE AMERICAN STUDIES

Designed to present an indigenous perspective using a multidisciplinary scope to explore the contemporary and historical issues facing Native American peoples. Writing lab required if available. (SS, NASD)

HIST 111 (2 CR)

PRE-CONTACT NATIVE AMERICAN HISTORY

Study of Native American History focusing on themes from oral narratives and other historical accounts. Course will study other expressions of history and identity such as totemic art, dance, song, and potlatch. Includes sections on classic indigenous cultures of the period from CA 1-1400 AD and the century before first sustained European contact (1400s). Writing lab required if available. Prerequisite: NASD 110. (SS, NASD)

CMPS 101 (3 CR)

INTRODUCTION TO COMPUTERS

Computer lab course providing an introduction to MS Windows, MS Word (word processing application), MS Excel (spreadsheet application), the internet and email. Review of the basics of computer components, disk handling, keyboard

SPCH 105 (4 CR)

INTRODUCTION TO INTERPERSONAL COMMUNICATIONS

Focuses on assisting students to better communicate interpersonally. Topics include verbal and non-verbal communication, giving and receiving feedback, developing self-esteem and assertiveness, conflict resolution, group dynamics, and the affect of community and tribal relationships on the communication process. Writing lab required if available. (CS)

HIST 112 (3 CR)

POST-CONTACT NATIVE AMERICAN HISTORY

Continues the study of Indian History beginning with the era of European Invasions and expansion into Native lands. Focuses on the Twentieth Century with topics such as the Meriam Report, Indian New Deal, reorganization, termination, Native American resistance, and founding of notable and prominent Native organizations and programs. Writing lab required if available. Prerequisite: HIST 111. (SS, NASD)

PHIL 140 (5 CR)

PHILOSOPHIES OF THE NATURAL WORLD

Compares and contrasts the European and Native American perspectives on the environment and investigates the role of religion and spirituality. Writing lab required if available. (HT, NASD)

SCIE 101 A-E (1 CR EA)

ENCOUNTERS IN THE SCIENCES

Survey of the physical and life sciences, integrating biology, chemistry, physics, geography, and cosmology, threaded with scientific history. Lecture and experiential activities, including seminars and field trips, weaving core concepts into a tapestry of scientific understanding and literacy. Specific topics embrace student interests, cultural relevancy, and traditional knowledge. (NS)

GEOL 101 (5 CR)

INTRODUCTION TO GEOLOGY

Covers basic geologic processes and earth cycles. Topics include minerals and rocks, earth history, structures and plate tectonics plus consideration of environmental geology such as rivers and floods, landslides, earthquakes, mining and hydrology. Lab work included. (NSL)

CHEM 121 (5 CR)

GENERAL CHEMISTRY I

Designed for students interested in programs requiring a strong background in chemistry. Topics include chemistry principles and problem solving techniques; the structure of matter; introduction to quantitative relationships (the MOLE concept) as well as chemical reactions and reaction types. Lab included. Prerequisite: MATH 098. (NSL)

ENGL 101 (5 CR)

ENGLISH COMPOSITION I

Prospectus for NWCCU Review

February 20, 2007

Focuses on improving writing by developing creative and analytical skills and by writing well developed, organized, significant and grammatically correct expositions as well as summaries of readings and other short assignments. Students prepare a portfolio containing essays and a summary. Prerequisite: ENGL 100 or placement test. (CS)

CHEM 122 (5 CR)

GENERAL CHEMISTRY II

Continuation of CHEM 121. Topics include: nuclear chemistry; atomic and molecular theory; electron configurations and periodicity; states of matter; gas laws; and solution chemistry including colligative properties. Extensive problem solving and laboratory work included. Prerequisite: CHEM 121. (NSL)

MATH 102 (5 CR)

COLLEGE ALGEBRA

Simplifying, multiplying, dividing, adding, subtracting, graphing, and solving rational expressions. Working with exponents, scientific notation, rational exponents, radicals, and complex numbers. Also, completing the square, the quadratic formula, and the discriminant. Prerequisite: MATH 099 or test above Intermediate Algebra. (NS, QS)

POLS 115 (5 CR)

AMERICAN POLITICAL SYSTEM

Outlines the main structure and function of American government. Also deals with politics in theory and in practice emphasizing political concepts, protest and reform movement.(SS)

CHEM 123 (5 CR)

GENERAL CHEMISTRY III

Continuation of CHEM 122. Topics include: control of chemical reactions; chemical kinetics and equilibria; acids and bases; precipitation reactions; electrochemistry and redox reactions; and quantitative analysis. Extensive problem solving and laboratory work included. Prerequisite: CHEM 122. (NSL)

POLS 118 (3 CR)

RIGHTS OF INDIAN TRIBES

Overview of United States Indian policy and its impact on the rights of Indian tribes and people. Problem of federal and state laws and the manner in which courts have interpreted the law examined. (SS, NASD)

MATH 107 (3-5 CR)

ELEMENTARY STATISTICS I

Explains concepts of samples, populations, descriptive versus inferential statistics, quantitative versus qualitative data, continuous versus discrete numerical data, mean, median, mode, range, and standard deviation. Emphasizes skill in constructing bar graphs, histograms, and using the binomial table and the normal curve to find probabilities of data occurrence. Prerequisite: MATH 099 or test above Intermediate Algebra. (NS, QS)

BIOL 201 (5 CR)

CELL BIOLOGY

Basic biology class designed for students intending to go further in the life sciences. Covers cell evolution, basic biochemistry, and cellular structure and function. Lab included. Prerequisite: CHEM 111 or 121, or concurrent enrollment. (NSL)

Prospectus for NWCCU Review

February 20, 2007

BIOL 202 (5 CR)

BOTANY

Covers the basics of algae, vascular plants and non-vascular plant structure, reproduction, nutrient uptake, growth and diversity. Lab included. Prerequisite: BIOL 201 and CHEM 111 or 121, or concurrent enrollment. (NSL)

ECON 202 (5 CR)

PRINCIPLES OF MACROECONOMICS

Topics include organization and operation of the American economy, the basic problems of economics, the role of business, labor and government; theory of price and income distribution with particular application to the structure of American industry. (SS)

ENVS 212 (5 CR)

WILDLAND FIELD ECOLOGY

Examines the threads of life that form the tapestries of the natural world. Topics include change, stability, patterns, structure, diversity, interactions, and cycling in ecosystems. Field-based labs included. Prerequisite: ENVS 201 or permission of instructor. (NSL)

NASD 131 (3 CR)

TRIBAL HISTORY I

Introduction to the history of the tribe and community where the course is taught, from the origin stories of the people and the development of that community's society through Allotment. Course is place specific and focuses on the specific historical events that influence the current status of that community. (SS, NASD)

BIOL 203 (5 CR)

ZOOLOGY

Introduces the topics of invertebrate and vertebrate anatomy and physiology, taxonomy, diversity and classification, and animal adaptation in terms of form and function. Lab included. Prerequisite: ENGL 100. (NSL)

ENVS 213 (5 CR)

**INTRODUCTION TO ENVIRONMENTAL
HYDROLOGY**

Introduces fundamental environmental hydrology concepts and associated environmental applications. Covers hydrological cycle, surface runoff, subsurface drainage, underground water flow, water quality, watershed, wetlands, water resources management, numerical modeling, and remote sensing/GIS. Lab included. Prerequisite: MATH 107. (NSL)

ENVS 265 (3 CR)

GIS AND REMOTE SENSING

Introduces use and operation of GIS software as well as the integration of air photos and satellite images into GIS systems. Lab included. (NSL)

MATH 210 (5CR)

BIOSTATISTICS

Focuses on the use of statistics in the life sciences, including experimental design, data collection and presentation, descriptive statistics, statistical tests, including one-and two sample hypothesis testing, analysis of variance (ANOVA), correlation, regression, and chi-squared tests. Conditions of each test and the use of statistics in scientific papers are examined. Prerequisites: MATH 107, 124 and any college level science course. (NS, QS)

Prospectus for NWCCU Review

February 20, 2007

ENGL 201 (5 CR)

TECHNICAL REPORT WRITING

Introduction to fundamental principles of technical report writing including problem solving, research, report structure and analysis, understanding audiences, and documentation of technical materials. Prerequisite: ENGL 101. (CS)

Appendix G

Employment projection information (WA, OR, ID)

Idaho Environmental job projections (page 1 of 2)
Positions requiring a bachelors degree or higher

Source: [Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections](#); [Idaho Commerce & Labor](#)

Via: <http://www.acinet.org/acinet>

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Environmental scientists and specialists, including health	73,400	85,900	+ 17 %	2,560
Idaho	Employment		Percent Change	Job Openings ¹
	2002	2012		
Environmental scientists and specialists, including health	480	650	+ 35 %	30

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Foresters	13,200	14,100	+ 7 %	470
Idaho	Employment		Percent Change	Job Openings ¹
	2002	2012		
Foresters	230	310	+ 31 %	10

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Hydrologists	8,000	10,600	+ 32 %	400
Idaho	Employment		Percent	Job Openings ¹
	2002	2012		

	2002	2012	Change	
Hydrologists	110	140	+ 31 %	10

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Natural sciences managers	42,200	47,900	+ 14 %	1,390
Idaho	Employment		Percent Change	Job Openings ¹
	2002	2012		
Natural sciences managers	470	600	+ 29 %	20

Idaho Environmental job projections (page 2 of 2)
Positions requiring a bachelors degree or higher

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Conservation scientists	18,600	19,700	+ 6 %	660
Idaho	Employment		Percent Change	Job Openings ¹
	2002	2012		
Conservation scientists	240	310	+ 28 %	10

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Geoscientists, except hydrologists and geographers	27,600	29,900	+ 8 %	720
Idaho	Employment		Percent	Job Openings ¹

	2002	2012	Change	
Geoscientists, except hydrologists and geographers	80	110	+ 27 %	N/A

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Soil and plant Scientists	16,900	19,300	+ 14 %	540
Idaho	Employment		Percent Change	Job Openings ¹
	2002	2012		
Agricultural and food scientists	180	220	+ 20 %	10

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Zoologists and wildlife biologists	16,500	18,600	+ 13 %	730
Idaho	Employment		Percent Change	Job Openings ¹
	2002	2012		
Zoologists and wildlife biologists	340	400	+ 19 %	20

Oregon Environmental job projections
Positions requiring a bachelors degree or higher

(page 1 of 2)

Source: [Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections](#); [Oregon Employment Department, Labor Market Information System](#)

Via: <http://www.acinet.org/acinet>

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Environmental scientists and specialists, including health	73,400	85,900	+ 17 %	2,560
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Environmental scientists and specialists, including health	430	490	+ 14 %	20

¹Job Openings refers to the average annual job openings due to growth and net replacement.

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Geoscientists, except hydrologists and geographers	27,600	29,900	+ 8 %	720
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Geoscientists, except hydrologists and geographers	170	200	+ 14 %	10

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Soil and plant Scientists	16,900	19,300	+ 14 %	540
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Agricultural and food scientists	720	780	+ 10 %	30

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Hydrologists	8,000	10,600	+ 32 %	400
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Hydrologists	210	230	+ 10 %	10

Oregon Environmental job projections
Positions requiring a bachelors degree or higher

(page 2 of 2)

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Conservation scientists	18,600	19,700	+ 6 %	660
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Conservation scientists	510	560	+ 9 %	20

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Zoologists and wildlife biologists	16,500	18,600	+ 13 %	730
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Zoologists and wildlife biologists	570	620	+ 9 %	30

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Natural sciences managers	42,200	47,900	+ 14 %	1,390
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Natural sciences managers	810	870	+ 8 %	20

United States	Employment		Percent Change	Job Openings ¹
	2004	2014		
Foresters	13,200	14,100	+ 7 %	470
Oregon	Employment		Percent Change	Job Openings ¹
	2002	2012		
Foresters	920	980	+ 7 %	40

Washington Occupational Employment Projections, June 2006
Washington Employment Security Department, Labor Market and Economic Analysis Branch

Washington State

title	Est. Emp. 2004	Est. Emp. 2009	Est. Emp. 2014	Avg. Annual Growth Rate 2004- 2009	Avg. Annual Growth Rate 2009- 2014
Environmental Engineers	1,625	1,836	1,985	2.5%	1.6%
Natural Sciences Managers	1,490	1,649	1,763	2.0%	1.3%
Environmental Engineering Technicians	354	399	426	2.4%	1.3%
Life, Physical, and Social Science Occupations	47,312	52,188	56,456	2.0%	1.6%
Life Scientists	10,566	11,596	12,487	1.9%	1.5%
Animal Scientists	170	181	195	1.3%	1.5%
Soil and Plant Scientists	627	671	720	1.4%	1.4%
Zoologists and Wildlife Biologists	1,542	1,689	1,817	1.8%	1.5%
Biological Scientists, All Other	870	942	1,004	1.6%	1.3%
Conservation Scientists	916	934	957	0.4%	0.5%
Foresters	783	808	832	0.6%	0.6%
Life Scientists, All Other	382	425	460	2.2%	1.6%
Environmental Scientists and Specialists, Including Health	3,581	4,017	4,360	2.3%	1.7%
Geoscientists, Except Hydrologists and Geographers	773	882	965	2.7%	1.8%
Hydrologists	408	462	502	2.5%	1.7%
Life, Physical, and Social Science Technicians	11,351	12,335	13,178	1.7%	1.3%
Agricultural and Food Science Technicians	660	718	767	1.7%	1.3%
Biological Technicians	4,124	4,578	4,954	2.1%	1.6%
Geological and Petroleum Technicians	58	66	72	2.6%	1.8%
Environmental Science and Protection Technicians, Including Health	1,091	1,204	1,307	2.0%	1.7%
Forest and Conservation Technicians	1,812	1,838	1,863	0.3%	0.3%

Prospectus for NWCCU Review
February 20, 2007

Agricultural Sciences Teachers, Postsecondary	154	167	180	1.6%	1.5%
Biological Science Teachers, Postsecondary	1,189	1,283	1,388	1.5%	1.6%
Forestry and Conservation Science Teachers, Postsecondary	134	144	156	1.4%	1.6%
Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsec.	482	520	563	1.5%	1.6%
Environmental Science Teachers, Postsecondary	157	170	184	1.6%	1.6%
Geography Teachers, Postsecondary	90	97	105	1.5%	1.6%
Secondary School Teachers, Except Special and Vocational Ed.	13,797	14,897	16,105	1.5%	1.6%
Fish and Game Wardens	106	110	116	0.7%	1.1%

Appendix H BSNES Development Timeline

Activity/Task	10/06	11/06	12/06	1/07	2/07	3/07	4/07	5/07	6/07	7/07	8/07	9/07
INSTITUTIONAL PLANNING/COMMIT. EVALUATION												
Science Department Strategic planning	1/05, 3/06											
Draft development timeline and budget	X											
Launching of Bachelor program website	X											
Faculty/staff BSES planning retreats	X	X	X	X								
Program presented to all faculty and staff for input			X	X								
Basic program structure presented to administration				X								
Discussions with commission regarding prospectus				X								
Basic program structure approved by administration				X								
Draft prospectus developed					X 15 th							
Prospectus approved by administration and board, submitted to commission												
Science Advisory committee selected						X						
Prospectus approved, admin/board gives “go ahead”							X					
College-wide orientation on bachelors degree development							X					
Detailed program structure approved (CC, admin)									15			
Degree program evaluation plan with tie to self study									X			
Program evaluation takes place										X	X	Cont.→
IDENTIFICATION OF NEED												
Survey of tribes (online, email, mail)	X	X	X									
Focus groups (tribal stem/edu, stem prof., alumni, potential students); face-to-face, teleconf, ITV	X	X	X									
Individual interviews (tribes, tribal org., stem prof, elders, alumni, potential students)	X	X	X									
Collect data from surveys completed of graduates,	X	X	X									

students, community etc.												
Collect job market data on PNW & NA comm..	X	X										
Activity/Task	10/06	11/06	12/06	1/07	2/07	3/07	4/07	5/07	6/07	7/07	8/07	9/07
IDENTIFICATION OF NEED (cont.)												
Seek input from existing students and graduates	X	X	X									
Attributes of graduates identified			X									
Statement of need, job market analysis & recruitment projections			X									
Send structure/content to stakeholders for input					X							
DEVELOPMENT OF PROGRAM GOALS, STRUCTURE AND CURRICULA												
Research on appropriate bachelor degree models	X	X	X									
Science/SS Faculty/staff/committee program planning retreat (basic structure)	X	X	X	X								
Broad program learning objectives identified			X									
Draft basic plan for program structure developed			X									
Development draft timeline, tasks and responsibilities				X								
STEM/SS Faculty/staff/committee program planning retreat (detailed structure)				X								
Review follow-up input from stakeholders (see above)					X	X						
Curriculum development/weekly meetings					X	X	X	X	X	X	X	X
Detailed program structure approved							X					
Curriculum Committee approval of courses							X	X	X	X	X	X
Classes begin												Cont.→
RESOURCE NEED AND ACQUISITION												
Analysis of resources needs		X	X									
Resource requirement report (in place/needed)				X								
Resource acquisition plan					X							
Partnership formation	X	X	X	X	X	X	X	X	X	X	X	Cont.→
Letters of support/commitment from stakeholders				X	X							
Identifying sources of funding, etc.	X	X	X	X	X	X	X	X	X	X	X	Cont.→

Proposal writing and submission		X	X	X	X	X	X	X	X	X	X	Cont.→
Acquiring/hiring/purchasing resources								X	X	X	X	Cont.→
Activity/Task	10/06	11/06	12/06	1/07	2/07	3/07	4/07	5/07	6/07	7/07	8/07	9/07
ORGANIZING FOR PROGRAM DEVELOPMENT AND DELIVERY												
Identifying persons for key roles of coordination, partnership formation, resource development, recruitment etc.				X								
Identifying persons for roles of curriculum development, teaching student services etc.					X							
Identifying persons for roles of curriculum development, teaching student services etc.						X						
Develop needed policies such as for release, adjunct faculty, staff positions, elders/community member etc.						X	X	X	X	X	X	X
Formalize collaborations (Tribal MOU, other MOUs, articulation, faculty, joint classes, shared facilities, etc.)							X	X	X	X	X	Cont.→
RECRUITMENT/ADMISSION												
Presentations at conferences, meetings, etc.	X	X	X	X	X	X	X	X	X	X	X	Cont.→
Develop recruitment plan and admission procedures and requirements				X								
Identify budget and secure funds for recruitment					X							
Assemble list of alumni and potential student					X	X						
Assemble list of people willing to assist in recruiting					X	X						
Identify contacts at feeder schools (HS, CC, TCUs)					X	X						
Prepare publicity plan and materials						X						
Informal candidacy granted							X					
Program announcement (including NWIC, TCUs							X					

etc.) with ceremony for community (s).												
Recruitment plan implemented							X	X	X	X	X	Cont.→
Engage identified alumni and others in recruitment							X	X	X	X	X	Cont.→
NWIC/BSNES orientations								X		X		Cont.→
SS, faculty, admissions work together to prepare students with academics and personal needs							X	X	X	X	X	Cont.→
Activity/Task	10/06	11/06	12/06	1/07	2/07	3/07	4/07	5/07	6/07	7/07	8/07	9/07
FACULTY AND PROFESSIONAL DEVELOPMENT												
Survey of faculty qualification and career desires		X	X									
Assign academic responsibilities (development, teaching, support)					X							
Hire needed personnel if required (faculty/staff)									X			
Professional development plan done for each faculty/staff									X			
Identify and secure PD funds and programs	X	X	X	X	X	X	X	X	X	X	X	Cont.→
Professional development activities for faculty					X	X	X	X	X	X	X	Cont.→
STUDENT SERVICES												
Research appropriate models for student support		X										
Develop a general student support strategy and plan			X	X								
Identify key support personnel						X						
Student Services orientation to BSNEs by faculty							X					
Student Services/BSNEs faculty planning retreats								X	X			X
Begin student support plan including pre-program activities (orientation, housing assistance etc.)									X	X	X	Cont.→
Possible summer pre-program enrichment										X		
LIBRARY AND INFORMATION RESOURCES		X	X									
Initial analysis of library resources			X	X								
Review of information/library resources via partners												
Develop summary of Lummi & Extension site holdings					X							

Faculty review holdings in terms of BS/NES courses						X						
Work w/ partners on gaining additional info resources						X	X	X	X			
Develop at 3 year plan for acquisition of resources							X					
Funds identified for acquisition of library resources								X				
Purchase of resources									X	X	X	Cont.→
Activity/Task	10/06	11/06	12/06	1/07	2/07	3/07	4/07	5/07	6/07	7/07	8/07	9/07
PHYSICAL FACILITIES AND EQUIPMENT												
Initial analysis of equipment and supplies Lummi/sites		X	X									
Finalize listing of equipment/supplies at Lummi/Sites				X								
Review equip./supplies in terms of courses/research					X	X						
Develop at 3 yr. plan for acquisition of equip./supplies						X	X					
Funds identified for acquisition of equipment/supplies							X					
Purchase of equipment/supplies								X	X	X	X	Cont.→
FRESHMAN/SOPHOMORE LEVEL COURSE IMPLEMENTAION												
Input from community, students, staff and environmental professions and faculty at sites	X	X	X									
Identification of needs for implementing Freshman & sophomore classes at sites with site staff and faculty			X	X								
Decision to implement Freshman & Sophomore classes at extension sites				X								
Identification of individual site's resources and needs in terms of Freshman/sophomore delivery					X	X						
Securing of funds & commitments for freshman and sophomore delivery						X						

Recruitment and admissions at sites							X	X	X	X	X	Cont.→
Curriculum development and preparation for site based courses							X	X	X	X	X	Cont.→
Academic enrichment/preparation for extension site student (Lummi or site to be determined)										X		
Freshman & sophomore classes begin at sites												X
	2/07	3/07	4/07	5/07	6/07	?/08	?/08	?/08	?/08	?/08	?/09	?/09
JUNIOR/SENIOR LEVEL COURSE IMPLMENTATION												
Determination of potential Junior & senior student numbers at each site	X	X	X									
Review of delivery models of other programs	X	X	X									
Review of site needs in terms of delivery mode	X	X	X									
Identification of potential local resources and partnerships (NWIC, Tribal, other colleges etc)	X	X	X									
Analysis of need & resources, decision to proceed with development of junior and senior at pilot site(s)			X	X	X							
TO BE DETERMINED BY FEASIBILITY STUDY												
Commitments/agreements made												
Funds secured												
Recruitment and admissions at sites												
Curriculum development and preparation for site based courses and activities at junior and senior levels												
Junior level courses begin at pilot sites												
Senior level courses begin at pilot sites												
Junior/senior level development process expanded to new site(s)												

Appendix I
NWIC Organizational Chart

Appendix J

Northwest Indian College Current Funds Revenues & Expenses 2 Year Program

ACTUAL				
2004	2005	2006	2007	2008
985,291	888,599	1,100,356	1,738,000	1,875,000
3,110,000	3,017,500	2,863,773	3,870,000	4,175,000
3,856,868	3,649,357	5,086,310	6,000,000	8,430,000
19,137	10,552	14,207	15,000	15,000
			250,000	250,000
669,221	665,517	2,074,017	1,650,000	1,150,000
859,879	696,102	740,594	750,000	800,000
9,500,396	8,927,627	11,879,257	14,273,000	16,680,000
2,913,797	3,090,229	3,197,387	3,350,000	3,520,000
182,720	164,352	201,671	212,000	220,000
2,096,952	1,843,144	1,761,278	1,850,000	1,940,000
1,595,711	1,757,235	2,307,077	2,420,000	2,540,000
845,499	840,233	745,721	820,000	900,000
69,115	50,223	27,789	30,000	30,000
1,221,586	1,189,517	1,197,425	1,300,000	1,400,000
574,587	164,253	3,291,822	3,850,000	6,000,000
9,499,967	9,099,186	12,730,170	13,832,000	16,570,000

Depreciation & Other includes capital expenditures toward construction of a new campus

Appendix J

Northwest Indian College Current Funds Revenues & Expenses 4 Year Program

ACTUAL				
2004	2005	2006	2007	2008
985,291	888,599	1,100,356	1,738,000	1,920,000
3,110,000	3,017,500	2,863,773	3,870,000	4,500,000
3,856,868	3,649,357	5,086,310	6,000,000	8,500,000
19,137	10,552	14,207	15,000	15,000
			250,000	250,000
669,221	665,517	2,074,017	1,650,000	1,150,000
859,879	696,102	740,594	750,000	800,000
9,500,396	8,927,627	11,879,257	14,273,000	17,100,000
2,913,797	3,090,229	3,197,387	3,350,000	3,740,000
182,720	164,352	201,671	212,000	270,000
2,096,952	1,843,144	1,761,278	1,850,000	1,980,000
1,595,711	1,757,235	2,307,077	2,420,000	2,550,000
845,499	840,233	745,721	820,000	900,000
69,115	50,223	27,789	30,000	30,000
1,221,586	1,189,517	1,197,425	1,300,000	1,400,000
574,587	164,253	3,291,822	3,850,000	6,000,000
9,499,967	9,099,186	12,730,170	13,832,000	16,900,000

Depreciation & Other includes capital expenditures toward construction of a new campus

Appendix J

Northwest Indian College

FY2008 / Year One Projection

		2 year	4 year	Difference
Tuition & Fees		1,872,000	1,924,800	52,800
Government Grants & Contracts				0
Federal	Unrestricted	4,170,000	4,530,000	360,000
	Restricted	8,432,000	8,500,000	68,000
State	Unrestricted			
	Restricted	15,000	15,000	0
Local	Unrestricted			
	Restricted	250,000	250,000	0
Private Gifts Grants & Contracts	Unrestricted			
	Restricted	1,150,000	1,150,000	0
Other Sources		800,000	800,000	0
Total Current Funds Revenues		16,689,000	17,169,800	480,800
Education & General Expenses				
Instruction		3,525,000	3,749,895	224,895
Library		225,000	276,000	51,000
Student Services		1,945,000	1,989,100	44,100
Institutional Support		2,540,000	2,594,900	54,900
Plant Operations & Maintenance		900,000	900,000	0
Scholarships & Fellowships	Unrestricted	35,000	35,000	0
	Restricted	1,400,000	1,400,000	0
Depreciation & Other		6,000,000	6,000,000	0
Total Educational and General Expenses		16,570,000	16,944,895	374,895

Depreciation & Other includes capital expenditures toward construction of a new campus

BSNES Revenue and Expenditures

Northwest Indian College

FY2009 / Year Two Projection

		2 year	4 year	Difference
Tuition & Fees		2,000,000	2,070,400	70,400
Government Grants & Contracts				0
Federal	Unrestricted	4,470,000	4,950,000	480,000
	Restricted	8,932,000	9,000,000	68,000
State	Unrestricted			
	Restricted	15,000	15,000	0
Local	Unrestricted			
	Restricted	250,000	250,000	0
Private Gifts Grants & Contracts	Unrestricted			
	Restricted	2,650,000	2,650,000	0
Other Sources		850,000	850,000	0
Total Current Funds Revenues		19,235,000	19,785,400	550,400
Education & General Expenses				
Instruction		3,701,250	3,906,250	205,000
Library		240,000	274,500	34,500
Student Services		2,042,000	2,088,305	46,305
Institutional Support		2,667,000	2,724,645	57,645
Plant Operations & Maintenance		990,000	990,000	0
Scholarships & Fellowships	Unrestricted	40,000	40,000	0
	Restricted	1,500,000	1,500,000	0
Depreciation & Other		7,500,000	7,500,000	0
Total Educational and General Expenses		18,680,250	19,023,700	343,450

Depreciation & Other includes capital expenditures toward construction of a new campus

Northwest Indian College

FY2010 / Year Three Projection

		2 year	4 year	Difference
Tuition & Fees		2,128,000	2,198,400	70,400
Government Grants & Contracts				0
Federal	Unrestricted	4,770,000	5,250,000	480,000
	Restricted	9,932,000	10,000,000	68,000
State	Unrestricted			
	Restricted	15,000	15,000	0
Local	Unrestricted			
	Restricted	250,000	250,000	0
Private Gifts Grants & Contracts	Unrestricted			
	Restricted	2,700,000	2,700,000	0
Other Sources		900,000	900,000	0
Total Current Funds Revenues		20,695,000	21,313,400	618,400
Education & General Expenses				
Instruction		3,885,000	4,034,000	149,000
Library		250,000	286,075	36,075
Student Services		2,144,000	2,192,625	48,625
Institutional Support		2,800,000	2,860,530	60,530
Plant Operations & Maintenance		1,090,000	1,090,000	0
Scholarships & Fellowships	Unrestricted	45,000	45,000	0
	Restricted	1,600,000	1,600,000	0
Depreciation & Other		8,600,000	8,600,000	0
Total Educational and General Expenses		20,414,000	20,708,230	294,230

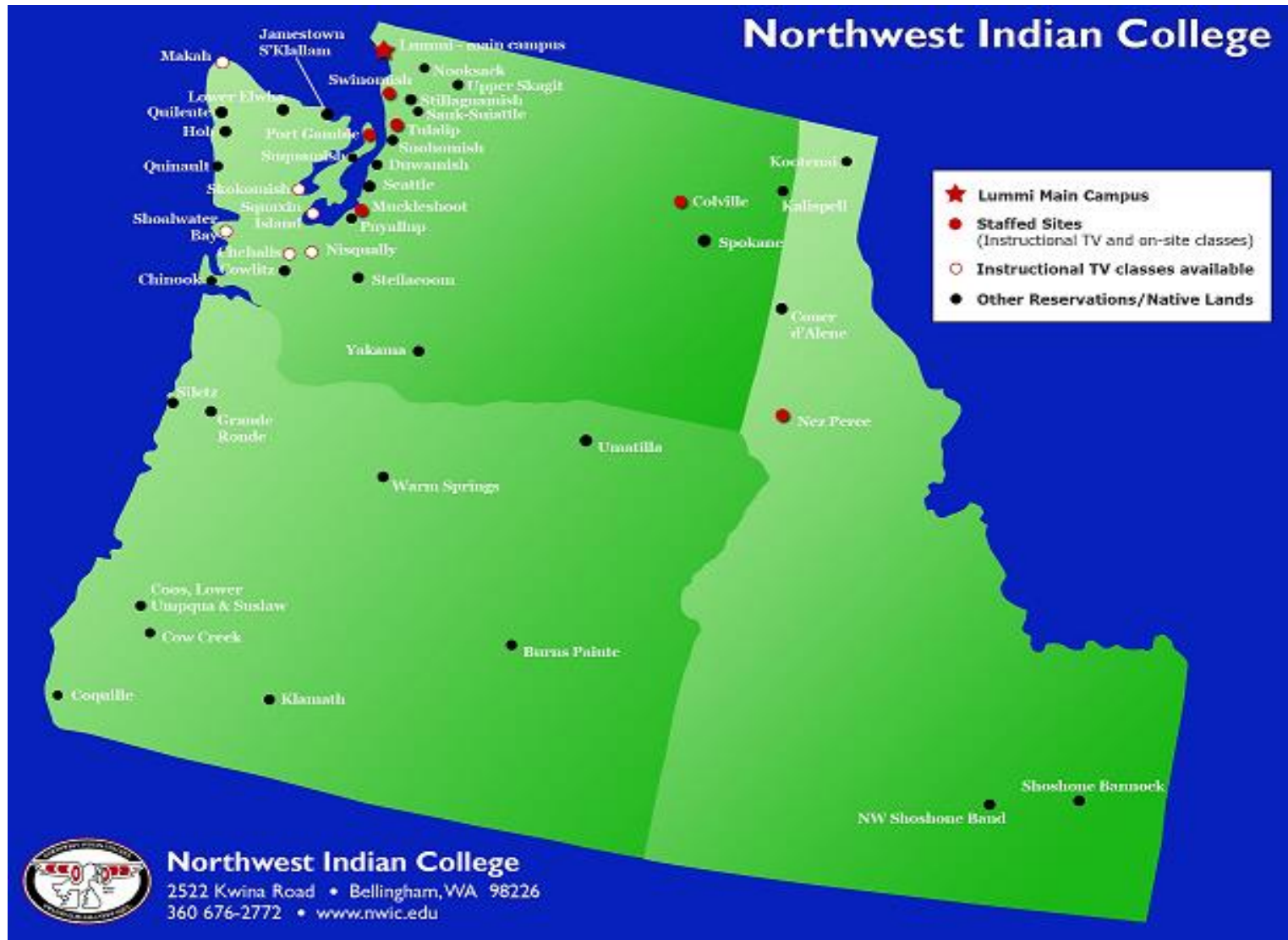
Depreciation & Other includes capital expenditures toward construction of a new campus

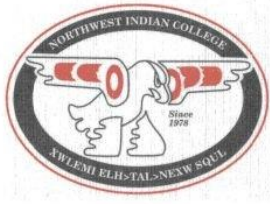
Appendix K

IPEDS Financial Report

Appendix L

Map of NWIC Sites in the Pacific Northwest





Appendix M
Curriculum Committee Approval to Proceed

NORTHWEST INDIAN COLLEGE

2522 Kwina Road, Bellingham, WA 98226-9217
(360) 676-2772 (360) 384-8070 FAX (360) 738-0136

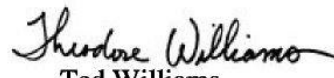
February 8, 2007

The Northwest Indian College Curriculum Committee is the official body within the college that reviews and approves new programs of study. The Curriculum Committee has reviewed the course matrix, credits and the general program structure for the Bachelor of Science in Native Environmental Science as proposed. The Curriculum Committee has approved recommending to the College President and the Board of Trustees that Northwest Indian College submits a prospectus for the Bachelor of Science in Native Environmental to The Northwest Commission on Colleges and Universities.

The Curriculum Committee understands that the program will be fully developed upon approval of informal candidacy by The Northwest Commission on Colleges and Universities and that the Bachelor of Science in Native Environmental Science program of study and new courses necessary for delivery of the program will be presented to and approved by the Curriculum Committee in accordance with policy and that the program, upon approval, will be published in the Northwest Indian College Catalog.

Sincerely,


Dr. Lucy Wood-Trost
Chair of NWIC Curriculum Committee


Ted Williams
Dean of Academics