**NWIC Curriculum Committee Program Review Form-**

P

Program Title \_\_B.S. in Native Environmental Science\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type of Program:

BS: ❑ BA: ❑ AAS: ❑AST: ❑AAS-T: ❑ATA: ❑Certificate: ❑Award of Completion

Person Presenting Program:\_\_Joel Green\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

❑ Yes ❑ No Should this program remain active? If no, attach program deactivation form.

Note: You do not need to complete the remainder of this form if you are deactivating the program.

**The program has been offered using the following modalities within the past year.**

Check all that apply.

❑ Face-to-Face, list all locations \_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** ❑ Individualized Learning (IL or LC)

❑ Online ❑ ITV Telecourse ❑ Hybrid ❑ Fast Track ❑ Not taught by any modality

If program has not been offered during the past year, attach explanation of why it should remain active.

**Program Information**

**A. Evaluation of program history, maturity, and compatibility with current NWIC’s expectation**

*a) Why was the program established?*

From the Substantive Change Prospectus:

“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.”

*b) Does the program align with the mission and the strategic plan?*

The program supports the college mission:

“Through education, NWIC promotes indigenous self-determination and knowledge”

in that through this educational program, students gain the knowledge, skills, and credentials to obtain employment in tribal natural resources agencies and play a role in governance and natural resource management.

The program supports all of the four Core Themes that are included in the NWIC Strategic Plan:

Core Themes:

1. Engage Indigenous knowledge
2. Commitment to Student Success
3. Access to Higher Education Opportunities at All Levels for Tribal Communities
4. Advance Place-Based Community Education and Outreach

*How has the program evolved over the years?*

The program started with a single version, focused on preparing tribal members for careers in environmental sciences and natural resource management, with a base of traditional ecological knowledge. In 2008, one year after the program began, the program began to offer a second option, the Interdisciplinary Concentration Option (ICO). The ICO has a reduced number of required courses, and considerable flexibility for students to develop an educational plan based around their particular interests. The original version became known as the Environmental Science Option (ESO). In the 2010-2011 academic year, the science program faculty and staff revised the program, removing BIOL 101 Introductory Biology from the ESO, stipulating that the first capstone course be taken in the junior year and the second in the senior year, and some other changes. In the 2011-2012 academic year, the science program faculty and staff developed a list of program goals, in part distilled from the original prospectus. They also developed a list of priority subject areas for courses to retain or add within the program, and a set of criteria for adding new courses.

*c) Has the context changed within which the program is expected to operate, i.e., would this program meet the expectations for a new program approved today?*

The context has not changed, and the program would meet the expectations for a new program approved today.

**B. Demand for the Program**

*a) Enrollment, retention, success (graduation) data.*

There is considerable demand for the program, as evidenced by the significant and growing enrollment in the program (Table 1). Our retention rates are less than we would like, and this is a priority area for improvement (Table 2). Nevertheless, each year to date, the number of graduates has increased, and we now have a total of 19 graduates of the BS in Native Environmental Science (Table 3).

**Table 1.** Fall quarter enrollment in science programs at Northwest Indian College for academic years 2007-2008 through 2012-2013

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Academic Year | AASNES | BSNES | Total NES | Life Science | Total Science |
| 2007-2008 | 0 | 37 | 37 | 4 | 41 |
| 2008-2009 | 1 | 40 | 41 | 2 | 43 |
| 2009-2010 | 5 | 49 | 54 | 2 | 56 |
| 2010-2011 | 21 | 41 | 62 | 3 | 65 |
| 2011-2012 | 21 | 58 | 79 | 2 | 81 |
| 2012-2013 | 21 | 59 | 80 | 7 | 87 |

**Table 2.** Number of students in the AAS in Native Environmental Science and BS in Native Environmental Science who enrolled in year to year fall terms, and the resulting fall-to-fall retention, for the period Fall 2007 through Fall 2013. Note: the AASNES began to be offered in fall 2009.

|  |  |  |  |
| --- | --- | --- | --- |
| Academic Year | Percent Retention  Main Campus | Percent Retention  Nez Perce Sites | Percent Retention  All Sites |
| Fall 2007 – Fall 2008 | 12/20 = 60% | 3/4 = 75% | 26/41 = 63% |
| Fall 2008 – Fall 2009 | 19/23 = 83% | 3/4 = 75% | 27/43 = 63% |
| Fall 2009 – Fall 2010 |  |  | 29/49 = 59% |
| Fall 2010 – Fall 2011 |  |  | 26/54=48% |
| Fall 2011 – Fall 2012 |  |  | 33/59=56% |
| Fall 2012 – Fall 2013 | 24/42 = 57% | 7/10 = 70% | 51/82 = 62% |

**Table 3.** Graduates of the BSNES

|  |  |
| --- | --- |
| Academic Year | Number of Graduates |
| 2008-2009 | 1 |
| 2009-2010 | 2 |
| 2010-2011 | 3 |
| 2011-2012 | 7 |
| Total | 19 |

*b) Employment data (including student’s continuing education)*

Graduates of the BSNES degree program have gone on to successfully engage with graduate degree programs, obtain employment in such professions as biologist, environmental coordinator, academic advisor, women’s wellness project coordinator, and part-time college faculty. They have been employed by tribal and federal agencies, a college, and the private sector. Details follow.

2008-2009

* Jessica Urbanec graduated in spring 2009. She has worked as Teaching Assistant and Part-Time Faculty at NWIC.

2009-2010

* Maggie Picard graduated in Spring 2010. Maggie subsequently enrolled in the Professional Science Masters in Natural Resources and Environmental Science at the University of Idaho. [pica7766@vandals.uidaho.edu](mailto:pica7766@vandals.uidaho.edu). She graduated from this program in 2012, and is now focusing on raising her young children.
* Tuiaana Moliga graduated in Spring 2010. He is currently employed as research biologist with the Department of Fisheries Resource Management in Lapwai, ID

2010-2011

* Tyson Oreiro graduated in Fall Quarter 2010. He is currently working as Science Academic and Career Advisor at Northwest Indian College.
* Lora Boome graduated in Spring Quarter 2011. She is currently working at NWIC in the Center for Health as the Women’s Wellness Project Coordinator.
* Mary Kennedy graduated in Spring, 2011. Mary is currently working as an Environmental Coordinator with the Ketchikan Indian Community Housing Authority in Ketchikan, AK. [haida\_lady\_99@yahoo.com](mailto:haida_lady_99@yahoo.com)

2011-2012

* Lance Brockie graduated in Fall Quarter, 2011. He is currently seeking employment in the environmental sciences field.
* Casey Mitchell graduated in Fall Quarter 2011, and is working for the Nez Perce Tribe Fisheries Watershed Division, as a fisheries biologist.
* Etta Axtell graduated in Spring Quarter 2012, and is seeking employment in the environmental sciences field.
* Rita Asgeirsson graduated in Spring Quarter, 2012, and has accepted a position in the graduate program in Geography at Western Washington University, where she is working toward her master’s degree.
* Jennie Martin graduated in Spring Quarter, 2012, and is seeking employment in the environmental sciences field.
* Diana Warden graduated in Spring Quarter 2012, and is formulating a business plan for her own business.
* Mabel Robin Blackeagle graduated in Spring Quarter 2012, and is spent the summer on her traditional summer activity of small-scale commercial salmon fishing.

*c) Map of student progress from two year program to 4 year program,*

NEEDS DATA – students initially in the AASNES who go on to the BSNES, could be part of retention analysis

*d) if applicable does the program offer new approaches to collaborative learning or uses of technology likely to be emulated by other programs?*

The BSNES ICO program has a requirement for a course with a service learning component. The concept of having a service learning component required may well be emulated by other programs.

*e) How is the program connected to and necessary for other programs of study?*

The program currently has certain classes that are available to both students enrolled in the BSNES and students enrolled in other programs, such as BIOL 101 Introduction to Biology, ENVS 265 GIS and Remote Sensing. These course offerings provide options for students in other programs to gain breadth in their education.

**C. Quality of Program**

Faculty and Staff:

*a.) What is the percentage of instruction offered by full-time versus part-time faculty?*

On the main campus, all required courses above the level of Prerequisites are taught by full-time faculty. At the Nez Perce extended campus site, required courses are taught by both full-time and part-time faculty. At the Swinomish and Port Gamble S’Klallam sites, required courses are taught by part-time faculty only.

*b) Ability of the faculty to communicate and collaborate among all program faculty (including adjunct and pertinent faculty) and staff with such issues as curriculum design and review, state-of-the-art content, professional development activities, and program delivery.*

Science program faculty meet regularly to work on issues such as curriculum design and review, course content, and program delivery. Part-time faculty sometimes participate in these meetings.

Students:

*a.) How does the program employ methods of instructional delivery that are appropriate to the discipline and to the educational needs of the students?*

The program employs numerous experiential learning opportunities for students. Lab and field sessions are a key part of most science classes. These experiences are appropriate to the discipline of Native environmental science, as students gain skills, knowledge and abilities in these field and lab experiences that they will be able to later apply during their professional careers as environmental scientists. These field and lab experiences are also appropriate to the educational needs of the students, as the information they are gaining in science classes becomes more meaningful and applicable to their lives when they apply knowledge gained in field and lab settings.

*b) What is faculty accessibility to students (for example, through office hours, voice mail and email), appropriateness of class schedule designs that meet the needs of its student populations, availability, and demand?*

Faculty are available to students during their office hours, through voice mail and through email. Office hours, phone number and email address of faculty are provided on course syllabi. Class schedules are primarily during day-time hours between 8:00 AM and 6:00 PM. This schedule accommodates full-time students, but doesn’t accommodate working students who may want to attend part time. In the future, we will consider offering courses in evenings and weekends to accommodate working students. Course schedules during the week necessarily have overlap with other course schedules, due to the limited number of time slots available during the week. Though every effort is made to minimize these schedule conflicts, some schedule conflicts are unavoidable. This situation necessitates flexibility in which quarter courses are taken as part of Interdisciplinary Concentration Option student schedules. Another scheduling issue is that there is currently a requirement for the Native Environmental Science Seminar to be taken every quarter during the junior and senior years. This requirement does not allow for a student to be off campus for even one quarter. This is a disadvantage for a student who for example, would like to engage in a quarter of marine biology studies at Western Washington University’s Shannon Point Marine Center, or take a series of aquaculture classes at Bellingham Technical College. Faculty will review these issues to find solutions.

*c) Is there evidence that the program’s courses and programs successfully meet the learning and/or employment needs of students?*

The success of graduates in obtaining professional employment and successfully attending graduate programs in their fields of interest provides evidence that the programs courses and programs successfully meet learning and employment needs of students.

Curriculum:

*a. Is the curriculum and course content, design, and delivery reviewed regularly by the program, and have all course outlines been updated (at least once since the last program review)?*

The curriculum and course content has been reviewed during the 2011-2012 and 2012-2013 academic years. Course syllabi were reviewed during Curricular Review in 2013, and will subsequently be updated as necessary.

*b) Does the program systematically collect and review outcome data for courses and programs, take active steps to improve achievement, and report the results to the Assessment team?*

During the 2011-2012 academic year, the faculty systematically collected and reviewed outcome data for the course NES 499B Native Environmental Science Capstone. Students were evaluated for achievement of beginning, developing, or accomplished levels of the two program outcomes “Ways of Finding Out” and “Communication.” A final report in June 2012 described the process and results of the assessment. During the fall, 2012-2013 academic year, the faculty systematically collected and reviewed program outcome data for several other courses within the program. Results were assembled in matrix format, discussed, and a synthesis written describing results for all assessed courses. Based on the review, the faculty agreed that an approach to improve student achievement will be to make students aware of the outcomes early on, so that they can be working to achieve outcomes. Reports have been submitted to the assessment team.

Adaptability to Technology:

*a. What is the degree to which this program has taken advantage of advancements in technology to enhance learning, reinforce computer skills and computer literacy to prepare students for the higher-tech world in which they will live and work, attract technological support to the institution, enhance research, and enhance program-related public service?*

This program has taken advantage of advancements in technology in several ways:

Computers were purchased for use in the Geographic Information Systems (GIS) laboratory, and advanced software loaded onto these computers including the Minitab statistical program and the ArcGIS geospatial program. Students use these computers and programs as part of courses in biostatistics, GIS and remote sensing. Students also gain skills in using analytical equipment during chemistry and biology laboratory courses and during their internships. For example, students have engaged in using advanced technological equipment in research on biotoxins in shellfish, studies of water quality in rivers and streams, and effects of wood stove emissions on air quality on the Nez Perce Reservation. These studies all have direct relevance to Native American communities, and are currently or will provide important information to these communities.

Equipment, Facilities, and Other Resources:

*a. How current are equipment and materials?*

Most equipment currently in use by the science program is less than 10 years old, and still functioning adequately. More equipment is necessary to outfit a new research laboratory, and to enhance the capacity of the extended campus sites.

*b) What is the degree of modernization of laboratories and specialized facilities necessary to ensure that students are adequately prepared?*

A new laboratory classroom building on the main campus was completed in 2011. This laboratory classroom is outfitted with state-of-the art facilities for studies in chemistry, biology and Geographic Information Systems. An ordinary classroom at the Port Gamble S’Klallam extended campus was converted to a laboratory classroom in 2011-2012, complete with lab tables, cabinets, sink, fume hood, eyewash station, and safety shower. This laboratory was recently outfitted with equipment such as microscopes, analytical balances, and glassware (beakers, flasks, etc.). Ordinary classrooms at the two Nez Perce extended campuses are in the process of being converted to laboratory classrooms. A 4,000 square foot research laboratory building is currently under construction on the main campus. This laboratory will house advanced analytical chemistry equipment which is currently in the old laboratory classroom building. Other specialized equipment will be purchased and installed in this building within the next year.

*c) How significant are the program holdings in the library and other learning centers?*

The NWIC library’s holdings in science subjects were analyzed using the library’s classification system. The Library of Congress Classification system uses the subject letter Q for science, with twelve subclasses. A snapshot of the shelves of the Lummi Library was taken the week of February 25th-March 1st. There were approximately 70 titles in the science subject Q classification in the reference collection, 12 of which were published in the last five years. There are over 1,000 titles in the science subject Q classification in the circulating collection. The largest subclasses are Natural History-Biology (381 total, 21 published in the last 5 years), Zoology (313 and 14) Botany (192 and 12) Mathematics (94 and 8) and Science-General (74 and 8.) Smaller collections are held in Astronomy, Physics, Chemistry, Geology, Human Anatomy, Physiology and Microbiology, but each subclass has at least one or two titles published in the last five years. There were 28 DVD titles with subject letter Q classification. These numbers represent most of the holdings in the science subjects, but there are some holdings in applied science areas such as fisheries, agriculture, and forestry that are not included in this analysis due to these holdings having classification letters other than Q.

The library subscribes to Credo Reference, an electronic resource which provides full text of more than 600 reference books, including 65 titles under the heading “Science.” The library also subscribes to ProQuest, a general magazine, newspaper, and journal database, and EBSCO’s Environment Complete and Sustainability Watch, which are specialized databases. All include full-text, although not all articles are full text.

The library has reciprocal borrowing agreements with Bellingham Technical College, Whatcom Community College, and Western Washington University and offers interlibrary loan services.

*d) What is the degree of student and faculty access to electronic sources of program information?*

Information on the program is available on the NWIC website, including a description of the program, the BSNES Degree Requirements Worksheet, the BSNES Program Outcomes, the Native Environmental Science Handbook, a link to an internship blog, and contact information for the science director.

*e) To what extent are the facilities conducive to quality learning experiences?*

Facilities at Northwest Indian College vary. Four of the five science classrooms are well designed and in good condition. One laboratory classroom in the old science building is suitable for only small classes, and the back of the room serves a storage function, due to limited storage elsewhere. The new science research lab currently under construction will provide additional storage space, and moving stored materials should improve the usability of the old chemistry lab classroom. Improvements are needed in the ITV equipment in some lab classrooms, to improve the experience for extended campus site students.

*f) What resources will it take to bring this program up to a higher level of quality?*

Although the program is already a high quality program, there are improvements that could be made. An analysis of ITV equipment resources is needed, to define needed improvements in the ITV systems, and these improvements should then be implemented.

A greater variety of upper division science classes are needed. This will require another part-time faculty member to develop courses and/or free up instruction time for existing faculty to develop and teach courses.

*g) Does the program have an advisory committee?*

The program does not currently have an advisory committee.

**D. Quality of Program Outcomes**

*a. What are the assessment results of the Program Outcomes?*

During the 2011-2012 academic year, science faculty worked on an assessment of student performance relative to two program outcomes, using the capstone course NESC 499B. The outcomes assessed were “Ways of Finding Out” and “Communication.” During the same period, the faculty revised the sub-outcomes for these two outcomes. Overall, 1 out of 3 students reached “Accomplished Level” and 2 out of 3 students reached “Developing level” for both outcomes: the written component of communication and for ways of finding out. The one student at the accomplished level followed the Interdisciplinary Concentration Option (ICO) and the two students assessed at the developing level followed the Environmental Science Option (ESO). Overall, the students learned critical thinking skills and demonstrated ability to link topics to their respective community. In addition, the students’ learned the process of creating a study from start to finish: asking a meaningful question, making connections between inquiry, analysis, and discussion, building on other scholarship, and linking back to community.

*b) What is the demonstrable effectiveness of the program in preparing students for the future?*

The effectiveness of the program in preparing students for the future is demonstrated in the success of graduates in attending graduate programs and obtaining employment as environmental science professionals and in other professional careers.

*c) Is there a curriculum map in place?*

There is a mostly completed curriculum map associated with the program outcomes listed in the current catalog. However, faculty worked on revising the program outcomes. When new outcomes are finalized, a new curriculum map will need to be created.

*d) Does it need to be revised?*

Yes (c above).

*e) Are all sites that offer the program aware of the program outcomes?*

All sites that offer the program are aware of the program outcomes. However, site faculty did not participate in revision of outcomes.

*f) Are the program outcomes “assessment-ready”?*

Program outcomes currently in the catalog are not acceptable to the faculty. Of the program outcomes that were being developed in Spring 2012, some are “assessment-ready,” and others are not as conducive to assessment. The new program outcomes need further work.

*g) Are Program outcomes, curriculum map and program outcome rubrics completed, accurate and appropriate, and posted on the NWIC assessment website?*

Program outcomes (listed in the current catalog) and associated program outcomes rubrics were completed, and the curriculum map is mostly completed, and all documents are posted on the NWIC assessment website. However, science faculty believe revisions are necessary. Science faculty have worked on this revision process during the 2011-2012 academic year. Rubrics for the new program outcomes have not yet been posted on the NWIC assessment website.

**E. Size, Scope of the Program**

*a) Has this program been growing, declining or remaining stable?*

This program has been growing steadily in enrollment. During the 2007-2008 academic year, enrollment was 37, and in fall 2012, enrollment had risen to 80 (Table 1).

*b) What factors may have contributed to increasing or decreasing enrollment?*

Increased awareness of students about the program due to student-to-student communication, outreach efforts of staff, and the Native Scientist Speaker Program are all factors which probably contributed to increasing enrollment in the program.

*c) What is the capacity of the program to increase enrollment without additional resources?*

The program has the capacity to increase enrollment without additional resources at the main campus, but may not at extended campus sites due to limited personnel at the sites. In order to offer a greater variety of upper division courses, additional faculty (at least one 0.5 FTE faculty member) is also needed on the main campus.

**F. Site Implementation**

Nez Perce Extended Campus Site

*a.) Resources- Tribal Input, Internships, Committee Participants, Collaboration with other colleges.*

The Nez Perce extended campus site has regular communication and integration with Nez Perce Department of Natural Resources and other agencies. An agreement was reached whereby Department of Natural Resources professional employees could serve as instructors to NWIC students during their work time. This expanded the instructional resources of the college. Students routinely are placed in internships in the Nez Perce Department of Natural Resources, and the NP Department of Fisheries Resource Management.

*b) Faculty- MS/MA degree qualified, non-instructional staff.*

Science Faculty include a full time instructor who holds a Ph.D. degree, and a part-time instructor who holds an MS degree.

*c) Facilities- space, equipment.*

Facilities at the two Nez Perce Extended Campus Sites include classrooms with laboratory tables and cabinets, and equipment and supplies such as analytical balances, microscopes, prepared slides, dissection kits, water quality testing equipment, hotplates, glassware (beakers, flasks, test tubes, etc.), an incubator, and various instructional kits for the sciences.

Needs:

*Science Equipment*:

*Chemistry* A sink has been installed at Kamiah in the lab classroom. A water purification system has been purchased for the Kamiah site, but has not yet been installed. A sink with water purification system still needs to be installed at Lapwai. Eyewash stations and safety showers have been purchased, but not installed. Ductless fume hoods are needed at both Lapwai and Kamiah. An acid/flammables cabinet is needed at Kamiah. Total costs will be in the range of $10,000 - $17,000. There is a need for chemicals and other consumable supplies to offer chemistry classes, in the range of $2,000 - $3,000.

*Field Ecology:* Many of the students aspire to work in natural resouces and fisheries programs. Field ecology equipment needs have been identified as a need for aquatic, wetland, and terrestrial ecology. Specific equipment has not been assessed now, but will be worked on during the next few months.

*Laboratory aquaculture and ecology:* The NPT continues to expand employment opportunities in aquaculture. Small scale aquaculture equipment such as aquariums and supplies will facilitate student training in both aquaculture and ecology through the use of microcosms. Specific equipment has not been assessed now, but will be worked on during the next few months.

*Native and medicinal plant nursery:* Many of our students are interested in maintaining cultural knowledge and use of native plants and the use of medicinal plants. The nursery would serve the educational needs of the students and outreach to the community. Students would also learn how to cultivate native plants for restoration activities. Specific equipment has not been assessed now, but will be worked on during the next few months

*Floor Mat*: There is a carpet installed in the science classroom at Kamiah. Matting should be placed on top to protect the carpet from chemical spills. Cost in the range of $300 - $1,000.

*ITV Equipment*: Updated ITV equipment is needed at Nez Perce. Old ITV equipment in the B rooms at Lapwai and Kamiah do not interface with computers, and so cannot be used to show PowerPoint presentations or screen shots at another site, and cannot be used to interface with the main campus, rather only between the two Nez Perce sites.

*d) Students-/Community - Community’s need for the program, interest level for students- include data on student demand- enrollment trends and demand for graduates,*

There are currently six students enrolled in the BS-NES and one student enrolled in the AAS-NES at the Nez Perce extended campus. An additional five students are working toward their NES degrees, but may not have declared a major. The Nez Perce Tribe has demonstrated a strong interest in the program, through offering support through collaborative instruction by Nez Perce natural resource professionals, and through frequent placement of interns in tribal government departments. Two graduates of the program have obtained employment with tribal natural resource agencies to date (to my knowledge).

*e) Sustainability- How many students are currently working on a 2yr science program?*

There is currently one student working on the 2-year AAS-NES degree. At Nez Perce, as at the main campus, students often enroll in the BS-NES even when they are early on in their college careers.

*f) Academic support*

Academic support at the Nez Perce site is provided by the site manager, faculty, and Nez Perce Education Department, as well as by the NWIC main campus at Lummi.

Port Gamble S’Klallam Extended Campus Site

*a.) Resources- Tribal Input, Internships, Committee Participants, Collaboration with other colleges.*

The Port Gamble S’Klallam extended campus site has regular communication and integration with PGS Department of Natural Resources and other agencies. Paul McCollum, the director of the PGS Department of Natural Resources, has been very supportive. However, NWIC has not yet established any formal MOA with the PGS tribe to my knowledge, and only one PGS employee has participated in teaching at NWIC. Students have been placed in internships with the PGS DNR.

*b) Faculty- MS/MA degree qualified, non-instructional staff.*

Science Faculty include a part time instructor who holds a M.S. degree.

*c) Facilities- space, equipment.*

Facilities at the Port Gamble S’Klallam Extended Campus Site include a full service science classroom with laboratory tables and cabinets, a lab sink with water purification system, eyewash, safety shower, a ductless fume hood, and equipment and supplies such as analytical balances, microscopes, prepared slides, dissection kits, water quality testing equipment, hotplates, glassware (beakers, flasks, test tubes, etc.), and an incubator. An ITV system was recently installed in this classroom.

Needs:

There is a need for chemicals and other consumable supplies to offer chemistry classes, in the range of $2,000 - $3,000.

*d) Students-/Community - Community’s need for the program, interest level for students- include data on student demand- enrollment trends and demand for graduates,*

There are currently six students enrolled in the BS-NES and seven students enrolled in the AAS-NES at the Port Gamble S’Klallam extended campus site. The Port Gamble S’Klallam Tribe has demonstrated a strong interest in the program, through placement of interns in tribal government departments.

*e) Sustainability- How many students are currently working on a 2yr science program?*

There are currently seven students working on the 2-year AAS-NES degree. At the PGS site, as at the main campus, students often enroll in the BS-NES even when they are early on in their college careers.

*f) Academic support*

Academic support at the PGS site is provided by the site manager, faculty, as well as by the NWIC main campus at Lummi.

Swinomish Extended Campus Site

*a.) Resources- Tribal Input, Internships, Committee Participants, Collaboration with other colleges.*

A 10-year duration MOA was established in 2009 between Northwest Indian College and the Swinomish Indian Tribal Community, to affirm both parties intent to support the college educational program in various ways. Swinomish tribal employees have not taught their own courses at NWIC, however the tribal archivist as well as the historic preservation officer have been invited speakers in NWIC BSNES coursework. Students have been placed in internships and independent learning contracts with the Swinomish tribal agencies including the Water Resources Department, Education Department, Historic Preservation Office and Environmental Management (Planning Department). Tribal employees are currently committee member for three BSNES students.

The Swinomish site hosts a community-based Food Sovereignty committee that consists of tribal members and tribal employees and meets monthly. This committee is developing the garden at our site and is directing the application of NWIC Cooperative Extension programming and traditional plants instruction at our site. The Director of Restoration (Skagit River Systems Cooperative) is actively engaged in our Food Sovereignty Committee and we are currently developing student internship opportunities within their land management and monitoring projects. He is also a graduate student at WSU-Northwestern Washington Research and Education Center. Swinomish site faculty is a member of his Ph.D. committee. An environmental specialist in the Swinomish Planning Department is currently developing student internships for 2013-2015 in the area of indigenous health indicators related to shellfish and coastal resource management. Science programming at NWIC has been supported by field trips to Kiket Island and Lone Tree Point Interpretive Center with the tribal naturalist. Transportation to these sites, as well as transportation support for off-reservation field trips (Port Susan Bay-The Nature Conservancy, Skagit River) has been supported by the Swinomish Youth Center.

*b) Faculty- MS/MA degree qualified, non-instructional staff.*

Science Faculty includes a part time instructor who holds a Ph.D. degree.

*c) Facilities- space, equipment.*

Facilities at the Swinomish Extended Campus Site include a science classroom with laboratory tables and cabinets, a lab sink, eyewash, safety shower, fume hood and equipment and supplies such as analytical balances, microscopes, prepared slides, dissection kits, water quality testing equipment, spectrophotometer, plant presses, hotplates, glassware (beakers, flasks, test tubes, etc.). An ITV system is located in this classroom, but the polycom needs to be updated.

Needs:

There is a need for chemicals and other consumable supplies to offer chemistry classes, in the range of $2,000 - $3,000. The planning department has an herbarium collection that they would like to house at our site and we need appropriate storage for these specimens.

Water purification system

Depends on answers to above questions

No formal grounds management arrangement has been set between NWIC and the Tribal Public Works office.

*d) Students-/Community - Community’s need for the program, interest level for students- include data on student demand- enrollment trends and demand for graduates,*

There are currently four students enrolled in the BS-NES and five students enrolled in the AAS-NES at the Swinomish extended campus site. The Swinomish Tribe has demonstrated interest in the program, through placement of interns in tribal government departments.

*e) Sustainability- How many students are currently working on a 2yr science program?*

There are currently five students working on the 2-year AAS-NES degree. At the Swinomish site, as at the main campus, students may enroll in the BS-NES even when they are early on in their college careers.

*f) Academic support*

Academic support at the Swinomish site is provided by the site manager, faculty, as well as by the NWIC main campus at Lummi.

**G. Opportunity for Program Analysis**

*a.) How could this program be revised in order to enhance or strengthen it?*

Short-Term Goals

* Add the new foundational courses to the BSNES degree program requirements. An important goal of the BSNES degree program is to “meet the need for effective Native American leaders and environmental scientists rooted in their culture.” These courses would provide students with an enhanced base of Native American cultural knowledge.
* Revise the chemistry requirements of the BSNES Environmental Science Option. The chemistry series that is currently a requirement covers inorganic chemistry, organic chemistry, and biochemistry in three quarters. We identified the problem that, based on the experience of instructors, it requires at least two quarters to cover the topic of inorganic chemistry adequately. We are considering changing the series to 2 quarters of inorganic chemistry and an optional third quarter of organic chemistry, or 3 quarters of inorganic chemistry and an optional fourth quarter of organic chemistry.
* Increase the level of math prerequisite for CHEM 121 or other beginning chemistry course from MATH 98 to MATH 99 or MATH 102.
* Design a lower division Introduction to Native Environmental Science course to be implemented into the program. This could potentially be added as one of the foundational courses.
* Change the math requirement for the BSNES Interdisciplinary Concentration Option from MATH 102 College Algebra to MATH 107 Elementary Statistics.
* Add more upper division course offerings.

Short/Long-Term Goals

* The AASNES degree could be phased out. The faculty at main campus are in favor of this, but as this change would have far-reaching effects, more input is being sought on this issue from extended campus site managers and faculty. If the AASNES degree is retained, then the new foundational courses should be added as part of the first two years of the program.
* Split the two options within the BSNES degree into two degree programs – the BSNES Environmental Science Option would keep the same title of BS in Native Environmental Science, and the BSNES Interdisciplinary Concentration Option would have one of the following titles:
  + BA in Native Environmental Studies
  + BA in Native Environmental Studies and Sciences
  + BA in Native Environmental Science
* Improve access to science offerings at extended campus sites through a combination of on-site instruction, online instruction, and ITV instruction.
* Improve infrastructure, equipment and supplies for science instruction at extended campus sites.

*b) What is the future outlook of the program?*

The future outlook of the program is positive. The reasons the area of environmental science was chosen as the first bachelor’s degree at NWIC are still relevant. There is still a need for Native American environmental scientists rooted in their culture to work for tribal, state, and federal agencies, and protecting the environment is a strong interest of many Native American students.

*c) Is the program fully implemented at the sites?*

The program is not yet fully implemented at the sites. Only the ICO is offered at the Nez Perce and Swinomish sites. There is a strong interest in offering the ESO at the Nez Perce and Port Gamble S’Klallam sites, but certain issues have not been resolved yet. Offering the chemistry series through ITV has not been completely successful – there have been problems with offering the labs at sites, and student success has been less than hoped for. More upper division courses will need to be offered at the sites, and the means and modalities for offering upper division science courses with labs has not been resolved yet.

*d) Identify and describe any important trends in the following areas which have an effect on program goals*.

A trend which could affect program goals in the future is the expansion of renewable energy use. In the future, the program may have an increased emphasis on preparing graduates to work in the renewable energy area.

*e) Are there any particularly difficult obstacles, either internal or external to the institution, which influence the effectiveness of the program's courses and programs?*

*f) Are there any new and revised goals and objectives* ***for program improvement*** *that were identified through the Program Review? Include both short-term (1 year) and long-term (5 years) objectives.*

To avoid redundancy, the response to (*f*) is included in the response to G (*a*) above.

*g) Identify partnerships and alliances that will/do benefit the college.*

The partnership with Nez Perce Natural Resource Department benefits the college, in that Nez Perce site students are able to benefit from expertise of natural resource professionals through the agreement whereby NP staff can serve as instructors during their work hours.

The articulation agreement with Bellingham Technical College will benefit the college by providing a pathway for BTC students to move into the BS NES degree program.

Partnerships of other extended campus sites with their host tribes also benefit the college. Our partnership with Lummi Natural Resources is beneficial, we have placed students in summer internships, and LNR has provided letters of support for our research grant proposals. We will continue to work on maintaining and building that relationship.

*h) Identify additional resources needed to maintain and improve program quality and to reach the goals and objectives (for example: hours for part-time employees, cost of remodeling, adjunct faculty hours, software, equipment, faculty development, etc.*

Additional part-time hours are needed for chemistry instruction, in order to allow time for full-time faculty to teach other courses such as soil science and upper division classes. Faculty development is needed to enhance faculty expertise in distance learning modalities. Equipment needs at extended campus sites is described in *F. Site Implementation* above.

*i) What additional information could be helpful to the review process?*

**Decision Making Grid**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Maintain a**  **Program** | **Enhance a**  **Program** | **Reconfigure a**  **Program** | **Reduce or**  **Phase-out**  **a Program** |
| **Quality and**  **Strength of the Program as Determined from the Program Review Information** | The program’s  quality is substantial and notable. | The program’s  quality is substantial but could be strengthened through curricular and/or other program enhancements, e.g. providing  additional resources, adding or deleting courses. | The program’s  quality could be strengthened through reconfiguration, e.g. substantial modification of the curriculum and the reorganization of faculty. | The program’s quality  and/or contribution to the institution is not substantial enough to justify its continuance. |
| **Enrollment** | The program’s  enrollment is strong. | The program’s  enrollment is adequate but could be strengthened. | The program’s  enrollment needs  to be strengthened. | The program’s  enrollment does not meet the expectations for continuance. |
| **Opportunity Analysis of the program** | Relationships,  partnerships,  and/or alliances are strong and the future outlook of the program will benefit the overall mission of the college. | Relationships,  partnerships, and/or alliances and the future outlook of the program could be developed to strengthen the program. | Relationships,  partnerships, and/or alliances and the future outlook of  the program need to be reconfigured in order to positively impact the college. | Relationships,  partnerships, and/or alliances and the future outlook of the program are not positively impacting the college. The program’s reduction or phase-out would not adversely impact other programs. |

**The area below is for Curriculum Committee use only.**

Summary of Curriculum Committee deliberations:

Recommendations:

Curriculum Committee action taken:

❑ Approved ❑ Returned to presenter for corrections

Approval of Program Review:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

Curriculum Committee Chair signature Date

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Dean of Academics and Distance Learning signature Date:

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Vice President of Instruction and Student Services signature Date: