Outcomes Assessment Plan for Educational Outcomes

***Program/Dept Name:* ENVIRONMENTAL CONSERVATIOM**

***Submitted by* CLAUS SVENDSEN *Date 29 October*, *2010; amended 14 February 2011***

**1. Program Objective 1:** Collaborative learning experiences for students.

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| **2. Intended Outcome(s)1** | **3. Criteria or Target** | **4. Comparison2** | **5. Assessment Methods or Tools** | **6. When/How Assessment will be Accomplished** |
| *3.2 Recognize, produce and demonstrate appropriate interpersonal, group, and public speaking skills***.** | Students will be able to work effectively and cooperatively in groups to produce a common well integrated product such as a report or presentation. Students will receive a rubric score ≥ 3. | It will be possible to compare ENVC 122 with ENVC 222. This fits with the programs IPA approach. Do we see improvements? | Rubric scores:**4** All of the following elements were present during the group work: A) You got to know each other, exchanged contact information and made sure that all felt equally valued as a member. B) You established clear objectives for tasks to accomplish. C) Agreed on meeting times, dates, and venues. D) Notes were taken during meetings. E) Allocated tasks equitable. F) Solved group problems you encountered. G) Achieved a good outcome/product.**3** You achieved G, but not all A-F.**2** You did not quite achieve G due to issues in A-F.**1** Most of A-G had problems.**0** The group dissolved. | ENVC 122 & 222 group/peer evaluations. |

1 Outcomes should include one or more of the following: 1) Cognitive Learning Outcome, 2) Behavioral Learning Outcome, 3) Affective Learning Outcome, or 4) Attainment Outcome.

2 Note if comparison data or groups are available using 1) pre-test/post-test, 2) baseline data, or 3) regional or national data and a brief description if needed.

***Program/Dept Name:* ENVIRONMENTAL CONSERVATIOM**

***Submitted by* CLAUS SVENDSEN *Date 7 November*, 2008**

**1. Program Objective 1:** Communication.

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| **2. Intended Outcome(s)1** | **3. Criteria or Target** | **4. Comparison2** | **5. Assessment Methods or Tools** | **6. When/How Assessment will be Accomplished** |
| * 1. **Recognize, read, comprehend, and produce academic and/or professional writing.**
 | Students will be able to write a report for the natural resources field containing all the correct elements, scientific style language as well as containing appropriate amount of literature researched specifically for the project. Students will receive a rubric score ≥ 3. | It will be possible to compare ENVC 122 with ENVC 222. This fits with the programs IPA approach. | Rubric scores:**4** 100% of required professional sections are used in the report. >90% correct language. ≥10 References used. Data has been manipulated and presented in correct graphs and tables.**3** >90% of required professional sections are used in the report. >80% correct language. ≥8 References used. Data has been manipulated and presented in correct graphs and tables.100% of required professional sections are used in the report. >80% correct language. ≥6 references used. Data has been manipulated and presented in correct graphs and tables.**1** Inadequate format and a few references used.**0** none-scientific sources were included; no synthesis, and inadequate presentation. | ENVC 122 & 122 Report papers. |

1 Outcomes should include one or more of the following: 1) Cognitive Learning Outcome, 2) Behavioral Learning Outcome, 3) Affective Learning Outcome, or 4) Attainment Outcome.

2 Note if comparison data or groups are available using 1) pre-test/post-test, 2) baseline data, or 3) regional or national data and a brief description if needed.

The communication assessment was repeated this past year. The previous year did not have enough data (ENVC 122 was missing) and it was a very disruptive year due to weather issues. As a result of last year’s assessment, we changed the course sequence to ensure that students would take ENGL 270 the first Spring Quarter to infuse technical writing skills into the report writing for ENVC 122. This is very important since the advisory committee expects graduate to have “good” written communication skills (Survey of 2006 of advisory committee indicate graduates have good communication skills, not superior). Consequently, we assessed both ENVC 222 and 122 Spring Quarter 2008.

7 **What were the results of the assessment(s)?**

Rubric scores: ENVC 122 Stream Ecology and ENVC 222 Field project

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| --- | --- | --- |
| **Rubric Scores** | **# of students by rubric score 122** | **# of students by rubric score 222** |
| **4** 100% of required professional sections are used in the report. >90% correct language. ≥10 references used. Data has been manipulated and presented in correct graphs and tables. | **3 students** | **6 students** |
| **3** >90% of required professional sections are used in the report. >80% correct language. ≥8 references used. Data has been manipulated and presented in correct graphs and tables. | **3 students** | **3 students** |
| **2** 80% of required professional sections are used in the report. >70% correct language. ≥6 references used. Data has been manipulated and presented in correct graphs and tables. | **6 students** | **2 students** |
| **1** Inadequate format and a few references used. |  | **1 student** |
| **0** none-scientific sources were included; no synthesis, and inadequate presentation. |  |  |

**ENVC 122 report** – the results shows that a full lab report is too complex to be written at this level as most students have not had Technical Writing yet. Having students write the paper as a group project the past few years did not increase the quality of the reports.

The new format will provide the report framework in lab notebook format so students can focus on each section of a report in a more structured way. Sections of the lab report will be given as individual assignments throughout the quarter as lab and field work are completed.

**ENVC 222 report** – there were 25% of the students that did not do well. This was the same students that were identified to do poorly the previous year in ENVC 122. The conclusion is that we must revise the writing component within the Environmental Conservation program.

**8. How were the results used to improve?**

Sue Koenig and Claus Svendsen have discussed how we can improve the written communication skills that are so critical for job success. The following plan is the result of our discussions:

* There must be a seamless progression of writing skills throughout the program
* Each quarter a course will be targeted for improving parts of a student’s writing skills
* First quarter, introduce secondary research skills and writing a 2 page review. A two hour library orientation is included.
* Second quarter, students will get a template for presenting field data.
* Third quarter, students will be given a template for a written report. They just fill in the sections. Students should now have an understanding of the entire report writing process.
* Fifth quarter, students will write an intensive literature review – improve research and writing skills (Portfolio item).
* Sixth quarter, students will write a full technical report based upon their fieldwork (Portfolio item).

**1. Program Objective 1:** Communication.

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| **2. Intended Outcome(s)1** | **3. Criteria or Target** | **4. Comparison2** | **5. Assessment Methods or Tools** | **6. When/How Assessment will be Accomplished** |
| Recognize, read, comprehend, and produce academic and/or professional writing. | Students will be able to write a report for the natural resources field containing all the correct elements, scientific style language as well as containing appropriate amount of literature researched specifically for the project. Students will receive a rubric score ≥ 3. | It will be possible to compare ENVC 122 with ENVC 222. This fits with the programs IPA approach. | Rubric scores:**4** 100% of required professional sections are used in the report. >90% correct language. ≥10 References used. Data has been manipulated and presented in correct graphs and tables.**3** >90% of required professional sections are used in the report. >80% correct language. ≥8 References used. Data has been manipulated and presented in correct graphs and tables.100% of required professional sections are used in the report. >80% correct language. ≥6 references used. Data has been manipulated and presented in correct graphs and tables.**1** Inadequate format and a few references used.**0** none-scientific sources were included; no synthesis, and inadequate presentation. | ENVC 122 & 122 Report papers. |

1 Outcomes should include one or more of the following: 1) Cognitive Learning Outcome, 2) Behavioral Learning Outcome, 3) Affective Learning Outcome, or 4) Attainment Outcome.

2 Note if comparison data or groups are available using 1) pre-test/post-test, 2) baseline data, or 3) regional or national data and a brief description if needed.

**1. Program Objective 2:** Information Literacy.

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| **2. Intended Outcome(s)1** | **3. Criteria or Target** | **4. Comparison2** | **5. Assessment Methods or Tools** | **6. When/How Assessment will be Accomplished** |
| Evaluate issues (for example economic, legal, historic, social) surrounding the use of information.Effectively integrate and use information ethically and legally to accomplish a specific purpose. | Ability access appropriate information on economic, legal, historical, social, and ecological issues and integrate them into the best solutions for an ecological restoration project. Students will receive a rubric score ≥ 3. |  | Rubric scores:**4** All issues are included in the development of the restoration project. Well integrated. Logical conclusions drawn. Student’s work reflects development of original ideas; accurately cites sources in a consistent, appropriate format; includes copyright information.**3** Two of the issues have not been addresses in the development of the restoration project. Somewhat integrated. Mostly logical conclusions drawn. Student’s work reflects development of original ideas; somewhat accurately cites sources in a consistent, appropriate format; includes copyright information.**2** Three of the issues have not been addressed in the development of the restoration project. Poorly integrated. Conclusions drawn inconsistent with collected data. Student’s work relies heavily on quotes with few original ideas; citations inaccurately cited in a inconsistent manner, inappropriate format; does not comply with copyright information.**1** Only one issue included in the development of the restoration project. No integration. Lack of coherent conclusions. Student’s work does not reflect development of original ideas; citations inaccurately cited in a inconsistent manner, inappropriate format; does not comply with copyright information.**0** None of the issues have been incorporated in the development of the restoration project. Incoherent presentation with no citations and no original ideas. Signs of plagiarism.  | ENVC 201 Presentation evaluation sheet. |

7 **What were the results of the assessment(s)?**

*Oral presentation:*

During Fall 2006, the information literacy was assessed using the rubric that was developed for Restoration ecology class presentation. All of the rubric scores fell in 3 (4 presentations) and 4 (7 presentations). Consequently, no changes are proposed at this time.

*Socioeconomic values:*

Program Outcomes assessment Rubrics for Ecological Restoration Oral Presentation:

Students will demonstrate an understanding of how conflicting values and socio-economic issues impact natural resource management.

|  |  |
| --- | --- |
| Rubric scores: | Student scores |
| **4** all values and interest groups identified |  |
| **3** all key values and interest groups identified | **6** |
| **2** some interest groups and values identified | **3** |
| **1** important values and interest groups not identified |  |
| **0** no values or interest groups were identified |  |

Students will demonstrate the ability to communicate effectively.

|  |  |
| --- | --- |
| **4** Use of computer flow charts and correct ecological terminology done exceptionally well. | **Student scores****6** |
| **3** Use computer flow charts and correct ecological terminology done in a professional manner. | **3** |
| **2** Student findings are poorly organized and lack complete professionalism. |  |
| **1** use of computer flow charts lack proper organization and professionalism. |  |
| **0** student fails to organize information. |  |

We did not do as well as intended. Therefore the following will be implemented for next year: More guided direction on required content and layout of the student talk. Create a template for the talk with examples. Although the evaluation form indicates that students are able to stand back and identify competing interests, we still need to strengthen this. I will try to make it a more specific requirement to ID competing interests and groups to ensure that students are aware. The oral presentation evaluation form – handed to the students at the beginning of the course will be revised. The form and a presentation template will be available to students through Blackboard.

*Written communication:*

The results of the rubric was 100% scored ≥3.

First, this was a very disruptive quarter impacting student learning. The class only meets once per quarter. All students generally had a poor quality introduction containing little background information (122,222). Students in 222 were also taking ENGL 270, which provided a different and confusing set of guidelines. Students need more help with their writing in ENVC 122. The following changes will be made.

Have students take ENGL 270 in the first spring to help the writing process for ENVC 122. For ENVC 222 students, a stricter guide will be given. More detailed guidelines for each section. It is important for the students to have a great example of their writing skills for job interviews.

From the program advisory committee survey conducted in 2006, graduating students were evaluated to have 100% good written communication skills.

***Program/Dept Name:* ENVIRONMENTAL CONSERVATIOM**

***Submitted by* CLAUS SVENDSEN *Date 15 October*, 2003**

**1. Program Objective 1:** Students will have the comprehensive skills and knowledge for entry-level natural resource technician positions or to transfer to a four-year institution (UW, U of I, WWU, Evergreen, OSU).

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| --- | --- | --- | --- | --- |
| **2. Intended Outcome(s)1** | **3. Criteria or Target** | **4. Comparison2** | **5. Assessment Methods or Tools** | **6. When/How Assessment will be Accomplished** |
| Students will demonstrate an understanding of how conflicting values and socio-economic issues impact natural resource management. | Students will receive a rubric score ≥ 3. |  | **Rubric scores:****4** all values and interest groups identified.**3** all key values and interest groups identified.**2** some interest groups and values identified.**1** important values and interest groups not identified.**0** no values or interest groups were identified. | Assessment will be embedded in the student assessment of their ecological restoration project, which is an oral presentation (ENVC 201). The rubric score is separate from student assessment. |
| Student will demonstrate appropriate use of technology within the natural resource area. | Students produce the following for their professional portfolio:GPS & GIS projects; Create an effective PowerPoint presentation. |  | **1)** Students have GIS, GPS projects in their portfolios outlining their skill levels. **2)** Student portfolio present examples of use of technology.**3)** Create a PowerPoint presentation. | GIS 101 & 105ENVC 201 |
| Students will demonstrate the ability to communicate effectively. | Students able to use PowerPoint to communicate effectively. Students will receive a rubric score ≥ 3. |  | **Rubric scores:****4** Use of computer flow charts and correct ecological terminology done exceptionally well.**3** Use computer flow charts and correct ecological terminology done in a professional manner.2 Student findings are poorly organized and lack complete professionalism.**1** use of computer flow charts lack proper organization and professionalism.**0** student fails to organize information. | Assessment will be embedded in the student assessment of their oral presentations in ENVC 201 and 221. The rubric score is separate from student assessment. |
| Students will demonstrate an understanding of the integrated importance of salmon in the management of natural resources on the landscape level within different socio-economic settings. | Students will receive a rubric score ≥ 3. |  | **4** identify salmon impact on wildlife, humans, land use, and economics.**3** identify three of the issues.**2** identify two of the issues.**1** identifies one of the issues.**0** identify none of the issues. | Short essay in ENVC 210 (homework five). |

**1. Program Objective 2:** Students demonstrate the ability to become life-long learners within the natural resource fields for all the Environmental Conservation Program tracks.

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| --- | --- | --- | --- | --- |
| **2. Intended Outcome(s)1** | **3. Criteria or Target** | **4. Comparison2** | **5. Assessment Methods or Tools** | **6. When/How Assessment will be Accomplished** |
| Students will demonstrate the ability synthesized researched up-to-date information. | Ability to search, acquire, synthesize, and write up scientific information in a review report. Students will receive a rubric score ≥ 3. |  | Rubric scores:**4** > 15 sources found addressing all aspects of the topic; info fully synthesized.**3** all key sources found to address the topic appropriately; generally > 10 sources; info adequately synthesized.**2** 5-10 sources were found; inadequate for the topic; incomplete synthesis of info.**1** less than five sources were used and not up-to-date; no synthesis.**0** none-scientific sources were included; no synthesis. | ENVC 210 Review paper. |

1 Outcomes should include one or more of the following: 1) Cognitive Learning Outcome, 2) Behavioral Learning Outcome, 3) Affective Learning Outcome, or 4) Attainment Outcome.

2 Note if comparison data or groups are available using 1) pre-test/post-test, 2) baseline data, or 3) regional or national data and a brief description if needed.

7 **What were the results of the assessment(s)?**

Data has been collected for: Students will demonstrate an understanding of how conflicting values and socio-economic issues impact natural resource management; students will demonstrate an understanding of the integrated importance of salmon in the management of natural resources on the landscape level within different socio-economic settings; students will demonstrate the ability synthesized researched up-to-date information. The data collection period covers the academic years of 2004 and 2006. This means that the Spring Quarter collection is not available for this interim report.

Preliminary results (17 March 2006):

Program Outcomes assessment Rubrics for Ecological Restoration Oral Presentation:

**Table 1** Students will demonstrate an understanding of how conflicting values and socio-economic issues impact natural resource management.

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| --- | --- |
| **Rubric scores:** | **Student scores** |
| **4** all values and interest groups identified | **18** |
| **3** all key values and interest groups identified | **15** |
| **2** some interest groups and values identified | **2** |
| **1** important values and interest groups not identified | **0** |
| **0** no values or interest groups were identified | **0** |

Two classes evaluated

**Table 2** Students will demonstrate the ability to communicate effectively.

|  |  |
| --- | --- |
| **Rubric Score** | **Student scores** |
| **4** Use of computer flow charts and correct ecological terminology done exceptionally well. | **4** |
| **3** Use computer flow charts and correct ecological terminology done in a professional manner. | **16** |
| **2** Student findings are poorly organized and lack complete professionalism. | 1 |
| **1** use of computer flow charts lack proper organization and professionalism. | **0** |
| **0** student fails to organize information. | **0** |

Program Outcomes Assessment Rubrics for ENVC 210 & 220:

Students will demonstrate an understanding of the integrated importance of salmon in the management of natural resources on the landscape level within different socio-economic settings.

**Table 3** Homework Five, Fish Ecology :

|  |  |
| --- | --- |
| **Rubric Score** | **Student scores** |
| **4** identify salmon impact on wildlife, humans, landuse, and economics. | **23** |
| **3** identify three of the issues. | **0** |
| **2** identify two of the issues. | **0** |
| **1** identifies one of the issues. | **0** |
| **0** identify none of the issues. | **0** |

Students will demonstrate the ability synthesized researched up-to-date information.

**Table 4** Fish Ecology Review Paper:

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| **Rubric Score** | **Student Scores** |
| **4** > 15 sources found addressing all aspects of the topic; info fully synthesized. | **15** |
| **3** all key sources found to address the topic appropriately; generally > 10 sources; info adequately synthesized. | **14** |
| **2** eight sources were found; inadequate for the topic; incomplete synthesis of info. | **4** |
| **1** less than five sources were used and not up-to-date; no synthesis. | **0** |
| **0** none-scientific sources were included; no synthesis. | **0** |

It should be noted that one to three classes have been assessed. However the rubric measures have been moved between courses to see if the assessment of fundamental principles provide the same result at the end of a student’s two-year attendance in the Environmental Conservation Program.

**8. How were the results used to improve?**

First, the assessment of GIS and GPS has been delayed due to a redesign of the GIS curriculum, which was in direct response to the assessment plan. We want students to have a well-documented portfolio and the redesign will address that students perform a GIS project. The student project will lend itself to be included in a student’s portfolio.

Second, as the assessment plan and its results were shared with the program advisory committee, they wanted to have actual input on the metrics measured, which resulted in further changes to the assessment plan. They suggested that we assess how well integrated the overall program curriculum is, including English and mathematics. The program’s capstone field project was selected (ENVC 222) to measure the integration piece. This assessment has been delayed due to problems integrating ENGL 270 with ENVC 222. Rubrics are being developed to measure our success.

*Preliminary Results:*

Generally, students are capable of identifying values of various interest groups (Table 1) concerning natural resource management issues (33 of 35 students). In addition, they were able to point out where the conflicting values stemmed from (not reflected in the rubric at this time). In the future, the rubric will include a measure of identifying conflicting values.

The results from the communication assessment (Table 2) have already resulted in changes to PowerPoint presentation requirements. For the ENVC 201 course, which measures the effectiveness of student’s PowerPoint Presentations, the course requirement were changed to include a small but very specific practice presentation (students are asked to include specific PP features). Students then have the ability to get feedback early on and incorporate their experience into their final presentation, which is included in their portfolio.

Another change has been the incorporation of email attachments for assignments. Students in the Natural Resource field must be familiar with attachments and electronic editing and commenting. This is now a curriculum requirement for ENVC 201 and 222. Furthermore, it allows for more distance education opportunities – less class time.

The great result in identification of salmon impacts (Table 3) has been archived by developing a conceptual salmon model available through the SVC website (www.skagit.edu/salmon). In the use of the model, it is clear that some revisions and additions are necessary. In addition to the model, on-line curriculum will be developed to expand the use of the model in a distance education environment.

In general, students are capable of synthesizing (Table 4) up-to-date information in at an acceptable level. However, I would like to get to a higher level by not having any students score a 2 in the rubric. I will change the curriculum to include weekly assignments requiring documentation for researched materials to push students to include more sources.

Finally, it is necessary to continue to assess the present outcomes for another year, and work on the delayed and new outcomes assessment methods.

During Spring, 2006 students were surveyed for attitudes toward distance education becoming a regular component of their learning experience. The results (see separate survey results sheet) indicated that students wanted less class time. In addition, I surveyed academic departments, which students are required to take classes from if students could either take a class DE or avoid coming on Fridays. Consequently, the program has dropped Friday classes and is developing on-line content through Blackboard. This will be completed by by the end of the academic year of 2006/07.

With the SVC adoption of the new General Education Learning Values, two new program objectives have been developed for program assessment. These are areas that graduating students must be able to master in order to be successful employees within the natural resource management sector.

***Program/Dept Name:* ENVIRONMENTAL CONSERVATIOM**

***Submitted by* CLAUS SVENDSEN *Date:* 5 may, 2000**

**1. Program Objective:** Students will have the comprehensive skills and knowledge for entry-level natural resource technician positions.

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| **2. Intended Outcome(s)1** | **3. Criteria or Target** | **4. Comparison2** | **5. Assessment Methods or Tools** | **6. When/How Assessment will be Accomplished** |
| Students who complete ATA in Environmental Conservation (ENVCT) will demonstrate competency in oral and written communication relevant to ENVCT. | 80% of ENVCT students leaving program with an ATA degree. |  | Instructor and peer evaluation of oral presentations and written reports. | Students pass skills designated classes (W & SP) with a C-grade or better as well as English 101 & 270. |
| Students will demonstrate knowledge of regulatory agencies and permit requirements in the natural resource field. | 80% of ENVCT students leaving program with an ATA degree. |  | Instructor evaluation using tests and group projects. | Students pass ENVCT 201 with a grade ‘C’ or better. |
| Students who complete ATA in Environmental Conservation have developed cooperative work skills through group projects and presentations. | 80% of ENVCT students leaving program with an ATA degree.  |  | Instructor and peer evaluation. | During and at completion of courses.  |
| Students will demonstrate use of applicable work skills in real work place settings and understand cultural issues in natural resource management. | 80% of ENVCT students leaving program with an ATA degree. |  | Employer evaluation.Self-evaluation.Advisor evaluation. | Pass ENVCT 199, 201, 221 with a grade ‘C’ or better. |
| Students will demonstrate ability to conduct field sampling of water quality, macroinvertebrates, plants, and vertebrates. | 80% of ENVCT students leaving program with an ATA degree. |  | Instructor evaluation using tests and reports | Pass ENVCT 112, 122, 211, 222 with a ’C’ grade or better. |
| Students will demonstrate ability to perform laboratory work, including keying of invertebrates, plants, fish, and aerial photo interpretation. | 80% of ENVCT students leaving program with an ATA degree. |  | Instructor evaluation using tests and reports | Pass ENVCT 112, 122, 211, 220 with a ’C’ grade or better. |
| Students will demonstrate ability to read scientific papers and to conduct library research for new scientific information. | 80% of ENVCT students leaving program with an ATA degree. |  | Instructor evaluation using tests, oral presentations, and written reviews. | Pass ENVCT 202, 210, 221 with a ’C’ grade or better. |

1 Outcomes should include one or more of the following: 1) Cognitive Learning Outcome, 2) Behavioral Learning Outcome, 3) Affective Learning Outcome, or 4) Attainment Outcome.

2 Note if comparison data or groups are available using 1) pre-test/post-test, 2) baseline data, or 3) regional or national data and a brief description if needed.

1. **What were the results of the assessment(s)?**

**Assessment Evaluation Data 1998-2001 for the Environmental Conservation Program**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Course | Outcome categories | Fall 1998 | Winter 1999 | Spring 1999 | Fall 1999 | Winter 2000 | Spring 2000 | Fall 2000 | Winter 2001 |
| ENVCT 112 (110 in '98-'99)  | E, F |  | 90% |  |  | 100% |  |  | 94% |
| ENVCT 122W (121 in '98-'99) | A, E, F |  |  | 100% |  |  | 94% |  |  |
| ENVCT 199 | D |  |  | 100% | 100% |  | 78%\*  |  | 83%\*\* |
| ENVCT 201S | A, B, D | 100% |  |  | 100% |  |  | 92% |  |
| ENVCT 202 | G | 93% |  |  | 92% |  |  | 89% |  |
| ENVCT 210W | E, F |  | 100% |  |  | 100% |  |  | 100% |
| ENVCT 211 | A, G |  | 100% |  |  | 100% |  |  | 100% |
| ENVCT 220 | F |  |  | 100% |  |  | 100% |  |  |
| ENVCT 221S | A, D, G |  |  | 100% |  |  | 100% |  |  |
| ENVCT 222W | A, E |  |  | 100% |  |  | 100% |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ENG 101 (by year) | A | 100% | 100% |  |
| ENG 270 (by year) | A | 100% | 100% |  |

A = oral & written communications skills

B = knowledge of regulatory agencies and permit requirements

C = cooperative work skills through group projects

D = applicable work skills and cultural issues in natural resource management

E = field sampling of water quality, macroinvertebrates, plants & vertebrates

F = lab work & keying

G = research new scientific information

\* = grade percentage includes one ‘Z’ & one ‘I’ grade

\*\* = grade percentage includes one ‘I’ grade

1. **How were the results used to improve?**

The results clearly demonstrate that the Environmental Conservation Program met and in most cases exceeded the assessment outcomes goals. However, they are really not that useful for improving curriculum, classroom delivery, or student skills improvement.

Consequently, a new set of program outcomes has been identified. These outcomes will be embedded in the classroom assessments. This is meaningful since the program coursework is build with a successively increase in complexity and integration of coursework as the students advance in the program. Therefore, second-year courses are especially valuable in assessing program outcomes. Winter Quarter has two courses that lend themselves nicely to the program outcomes assessment as outlined below. In addition, the chosen program assessment outcomes are meaningful for all the program tracks – Aquatic/terrestrial, marine, parks resource management, and transfer tracks. In other words, they are core outcomes all students must have when completing the program.

The chosen outcomes to be assessed have also been identified by employers. Students need to have an understanding of how the different socio-economic aspects influence natural resource management issues and that they cross traditional disciplinary boundaries. Finally, all students must be able to use relevant technology effectively within the natural resource field.

Finally, the chosen program outcomes fit with the overall college context of its vision, mission, and goals and objectives.