WASHTENAW COMMUNITY COLLEGE

PROGRAM ASSESSMENT REPORT

Program Code: ASENVS	**Program Name: Associates in Environmental Science**
Division: Math, Science and Engineering	**Department: Physical Science**

Award ☐A.A. ☒A.S ☐ A.A.S.
☐Cert. ☐Adv. Cert. ☐Post-Assoc. Cert. ☐Cert. of Completion

I. Review previous assessment reports submitted for this program and provide the followinginformation.

1. Was this program previously assessed and if so, when?

   Yes, this program was assessed in Fall 2017.

2. Briefly describe the results of previous assessment report(s).

   The data gathered from the previous assessment report was limited, so no definitive conclusions could be drawn. From the limited data obtained, the report says that it appears that students that transfer are succeeding, but again there wasn't enough data to say for surehow many students transferred and how many succeeded.

3. Briefly describe the <u>Action Plan/Intended Changes</u> from the previous report(s), when and howchanges were implemented.

   The report recommended changing the assessment tools in order to successfully gather more data. One specific recommendation was to include transfer information about UMich. However, given that we are generally unable to acquire solid data on transfer and performance at 4-year institutions, the current Program Assessment is based on datacollected on student performance at WCC.

II. Background Information

1. Indicate the semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2021	

2. Assessment tool(s) used (check all that apply):

☒ Portfolio
☒ Test or outcome-related test questions
☐ Other external certification/licensure exam (please describe):_____
☐ Externally evaluated performance or exhibit
☐ External evaluation of job performance (internship, co-op, placement, other)
☐ Capstone experience (please describe):
☐ Graduate Survey
☐ Employer Survey
☐ Transfer follow-up
☐ Other (please describe):_____

3. Indicate the number of students assessed/total number of students enrolled in the course(s)/program.

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# of students assessed	*Total population in course(s) or program*
ENV 101 ENV 105	206 students 165 students

4. Describe how you selected students for the assessment.
   a. Describe your sampling method.
   b. Describe the population assessed (e.g. students in capstone course, graduating students, alumni, etc.).

Assessed all students taking ENV 105 and ENV 101. Some of these were ASENVS majors, though many were not. Not all students completed the sustainability assignment or research paper.

III. Results

1. State every outcome (verbatim) from the Program Proposal form or the Assessment Plan Change Form for the program. *Add more lines as needed.*

1. Recognize the interrelationships between people and their environment.
2. Recognize the impact and importance of sustainability.
3. Apply appropriate principles and concepts to analyze and interpret data, maps, charts, diagrams, or graphs.

2. Briefly describe assessment results ==for each outcome== based on data collected during the program assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. **Please attach a <u>summary of the data collected</u> (as a separate document).** *Add more lines as needed.*

1. For outcome 1, 87.8% of students (122/139) scored 70% or better on the research paper assignment.
2. For outcome 2, 96.6% of students (143/148) scored 70% or better on the sustainability assignment.
3. For outcome 3, 93% and 90% of students scored 70% or better on ENV 105 outcome-related assessment questions; and 90%, 89%, and 70% of students scored 66.7% or better on ENV 101 outcome-related assessment questions.

4. For each outcome assessed, indicate the standard of success used, and the number and percentage of students who achieved that level of success. **Please attach the <u>rubric/ scoring guide used for the assessment</u> (as a separate document).** *Add more lines as needed.*

1. For outcome 1, the standard of success was that 70% or students would score 70% or better on the research paper. The standard of success was met.
2. For outcome 2, the standard of success was that 70% or students would score 70% or better on the sustainability assignment. The standard of success was met.
3. For outcome 3, the standard of success was that 70% or students would score 70% or better on ENV 105 outcome-related test questions and 70% or students would score 66.7% or better on ENV 101 outcome-related test questions. The standard of success was met.

5. Describe the areas of strength and weakness in students' achievement of the learning

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outcomes shown in assessment results.

Strengths:

> Students performed very strongly on assignments that required synthesizing knowledge from the course and applying it to real world issues, such as the research paper and sustainability assignment. Students also performed strongly on questions related to identifying environmental principles and concepts as well as applying environmental science to solve problems.

Weaknesses:

> The area where students were weakest, though the met the standard of success, was in interpreting data, maps, charts, graphs, diagrams. We know this is an area of improvement and learning for students. They need practice and specific feedback to help them understand how to make interpret graphs accurately and make evidence based conclusions, particularly for graphs, which display non-linear relationships.

IV. Changes influenced by assessment results

1. Based on the previous assessment report Action Plan(s) identified in Section I above, please discuss how effective any changes were in improving student learning.

> The previous assessment report recommended gathering transfer information from institutions such as UMich, however we haven't been able to obtain that data. Therefore, data was primarily gathered on learning outcomes from ENV 101 and ENV 105.
> However, we were able to obtain enrollment and graduation data for the ASENVS program.
>
> Enrollment ASENVS
>
> 2018-2019 = 144
> 2019-2020 = 120
> 2020-2021 = 149
>
> Grads
> ASENVS
> 2018-2019 = 12
> 2019-2020 = 6
> 2020-2021 = 3 Awarded and 2 Pending (this information may change as additional graduates complete requirements in Sp/ Su and Fall 2021).

2. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses. If students met all expectations, describe your plan for continuous improvement.

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> There are two primary weaknesses.
>
> The first is that students need support to strengthen skills in data analysis, particularly reading graphs and interpreting data. We do give a good deal of practice on this in our classes, but students need to be given more specific feedback in how to read graphs and data and make conclusions that are specific and precise.
>
> The second is that the ASENVS program graduation rates are low. Many ASENVS students take ENV 101 and/ or ENV 105. These classes both transfer directly to EMU. However, not many have taken ENV 174/ ENV 199 (a co-op or internship class for credit). Although we have offered ENV 189, independent study, asa substitute for students who have hardships in accessing in person work experiences, we still haven't seenan uptick in graduation rates. It may be that we have not advertised ENV 189 well enough. Or it may be that students are simply not interested in taking classes that do not transfer directly to four-year institutions.

3. Identify any other intended changes that will be instituted based on results of this assessmentactivity. Describe changes and give rationale for change. (Check all that apply).

   a. ☐ Outcomes/assessments from Program Assessment Plan Change Form or ProgramProposal form:

   b. ☐ Program Curriculum:
   - ☐ Course sequencing
   - ☐ Course deletion
   - ☐ Course addition
   - ☒ Changes to existing program courses (specify): Add PHL 241 – Environmental Ethics

   - ☐ Other (specify):

   c. ☐ Other (specify):

4. What is the timeline for implementing these actions?

> We can see if it is feasible to understand exactly how many students are taking both ENV 101 and ENV 105 before they transfer or leave WCC. These courses transfer directly to EMU, so students are likely taking these at higher rates; but it would be good to know for sure. Again, this depends on the availability of data.
>
> We have already implemented a program change that includes PHL 205, Environmental Ethics, as a course required for the major. We need to be sure that this course transfers directly to EMU. In addition, we will consider adding an option to the ASENVS major. Until the pandemic, an internship or co-op has been required for graduation. This may have been difficult for part-time students who have full-time jobs or families. We propose formalizing the workaround we've been using during the pandemic, to offer students a new course as an alternative to ENV 174/ 199 that is an intensive independent research project.
>
> The timeline for the new course would be to roll out Fall 2022.

V.   Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this program.

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> The assessment tools were effective at measuring student learning. However, one drawback was that we could not single out ASENVS students with these tools. Another drawback is that we don't have a sense of the success of the program overall in preparing students for the nextstep after WCC- whether a four year institution or a job.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

> It's hard to know how to design better assessment tools. As stated above, we can see what data is available to track ASENVS students specifically, both their coursework and transfer record. This might require some meetings with C&A committee members to brainstorm about the best way forward.

3. Describe when and how these assessment results will be discussed with the department and/ or the faculty at large.

> These assessment results will be shared both via email as well as a meeting with ENV full-time, part-time, and adjunct faculty. After finalization of the program assessment report, the final report will be distributed to ENV faculty, along with a summary of results and next steps. We'll follow that up with a discussion when we meet during In-Service.

Signatures:

Reviewer	Print Name	Signature	Date
Initiator	Smita Malpani	*Smita Malpani*	10/13/2021
Department Chair	Suzanne M. Albach	*Suzanne M Albach*	10/19/2021
Division Dean/Administrator	Victor Vega	*Victor M. Vega*	11/01/2021
Assessment Committee Chair	Shawn Deron		3/14/2022

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Reviewed by C&A Committees 11/11/21

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I. Background Information
1. Program Assessed
   Program name: Environmental Science
   Program code: ASENVS
   Division: Math, Science and Engineering Technology   Department: Physical Science

   Type of Award: ☐ A.A.   ☒ A.S   ☐ A.A.S.
                  ☐ Cert.   ☐ Adv. Cert.   ☐ Post-Assoc. Cert.   ☐ Cert. of Completion

2. Semester assessment was administered (check one):
   ☒ Fall 2017
   ☐ Winter 20_____
   ☐ Spring/Summer 20_____

3. Assessment tool(s) used (check all that apply):
   ☐ Portfolio
   ☐ Standardized test
   ☐ Other external certification/licensure exam (please describe):_____
   ☒ Graduate Survey
   ☐ Employer Survey
   ☐ Advisory Committee Survey
   ☐ Transfer follow-up
   ☐ Externally evaluated performance or exhibit
   ☐ Externally evaluation of job performance (internship, co-op, placement, other)
   ☐ Capstone experience (please describe):
   ☐ Other (please describe):

4. Have any of these tools been used before?
   ☐ Yes (if yes, identify which tool)
   ☒ No

   If yes, has this tool been altered since its last administration? If so, briefly describe changes made.
   N/A

5. Indicate the number of students assessed/total number of students enrolled in the course.
   From the inception of this program in Fall of 2011, we have had 19 students graduate from the program and we received transfer follow-up information for eight students, five that transferred to the University of Michigan and three that transferred to Eastern Michigan University.

6. Describe how students were selected for the assessment.
   a. Describe your sampling method.
   Unfortunately, we received very little data, so we included all students that we received data on.

   b. Describe the population assessed (e.g. graduating students, alumni, entering students, continuing students)?
   Included in this report are students that graduated from WCC with an AS in Environmental Science and transferred to EMU or UM in their Environmental Science programs.

II. Results

1. If applicable, briefly describe the changes that were implemented in the program as a result of the previous assessment.
   Not applicable (this is the first time this program has been assessed).

2. State each outcome (verbatim) from the Program Assessment Planning or Program Proposal form for the program that was assessed.
   1. **Students will successfully transfer to a four-year college in a related program**
   2. **Students will perform successfully at a four-year college in a related program**

3. Briefly describe assessment results based on data collected during the program assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. *Please attach a summary of the data collected (as a separate document).*
   For outcome number one, we only have data for eight students that transferred to a four-year university in a related program of the 19 graduates. Additional data provided by the Institutional Research department at WCC shows that from the program inception through Fall of 2014, there were 33 transfer students from ENVS, including WCC graduates and non-graduates. As of Fall of 2014, six of these students earned a Bachelor degree.

   For outcome number two, we have data on eight students that transferred to a four-year university in a related program. Three of those students attempted six courses at EMU, with a success rate of 66.7%. Five of the WCC students that transferred to UM took a total of 20 courses there, with a success rate of 95%. Based on the combined (and limited data), a total of eight WCC students attempted 26 courses at transferring universities with a total success rate of 89%.

4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. *Please attach the rubric/scoring guide used for the assessment (as a separate document).*
   Our standard of success dictates that 60% of the students will have enrolled in further education within two years and that 60% of the students who transfer to EMU will demonstrate success (earn a grade of "C" or better) in related courses in the science area. Because of the limited data available, it is impossible to say if we have met these standards definitively. From the limited data received, it appears that students that transfer are succeeding at their transfer universities overall, however, there is no solid data on exactly how many ASENVS students have transferred to a four-year university.

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

   Strengths: **From the limited data received, it does appear that ASENVS graduates are succeeding at transfer universities. However, the data is very limited and unclear to make a definite positive assessment on these outcomes.**

   Weaknesses: **Without more data, it is impossible to accurately measure areas of weakness in our program.**

III. Changes influenced by assessment results

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.
   Overall, we just need more data to properly assess this program. Part of the problem may be that the program is still relatively new and there have been few graduates, and many of these students may be still enrolled in a transfer college. I believe that the next assessment cycle will yield more helpful data.

2. Identify any other intended changes that will be instituted based on results of this assessment activity (check all that apply). Describe changes and give rationale for change.
   a. ☒ Outcomes/assessments from Program Assessment Planning or Program Proposal form:
   Changes in assessment tools should be made, as noted below, to include transfer data from the University of Michigan.

   b. ☒ Program Curriculum:
   Note: none of these changes were specific to this program assessment, but noted here for clarification.
   ☐ course sequencing
   ☒ course deletion **(ENV 201 was deleted in Fall 2017)**
   ☒ course addition **(ENV 199 – Internship in ENV SCI, proposed Winter 2018)**
   ☒ changes to existing program courses (specify): **Other changes were made to align the ENV program to the new transfer agreement**
   ☐ other (specify):
   c. ☐ Other (specify):

3. What is the timeline for implementing these actions?
   These changes, as well as other changes to the ENV program, will be proposed in Winter 2018, and hopefully implemented by Fall 2018.

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this program.
   The assessment tools really were not effective in that very little detail and information was provided. In addition, the assessment tools are specific to EMU only, and should include the University of Michigan, since we appear to have a number of students transferring to that university as well.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.
   As mentioned above, the current assessment tools only mention reviewing transfer data from EMU. This should be expanded to include transfer data from UM, also.

3. Which outcomes from Program Assessment Planning or Program Proposal form have been addressed in this report?
   All __**X**__   Selected _____
   If "All", provide the report date for the next full review: __**Fall 2020**_____.

   If "Selected", provide the report date for remaining outcomes: _____.

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Submitted by:

Name: <u>Suzanne M. Albach/</u>   Date: <u>11/06/2017</u>
    Print/Signature

Department Chair: _____ Date: <u>2.6.18</u>
    Print/Signature

Dean: _____ Date: <u>2.8.18</u>
    Print/Signature

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