

rec'd.  
11-25-19

**PROGRAM ASSESSMENT PLANNING FORM**

**Program to be assessed:**

Title: AS Environmental Science  
 Division: Math and Science Department: Phys Sci

Program Code: ASENSV

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

**Assessment plan:**

Learning outcomes to be assessed	Assessment tool	When assessment will take place	Describe population to be assessed	Number of students to be assessed
Recognize the interrelationships between people and their environment.	Research Paper	ENV 105, Fall 2019	All ENV 105 students	All students
Apply the principles of sustainability to various scenarios around the Great Lakes Region.	Great Lakesopoly	ENV 101, Fall 2019	All ENV 101 students	All students
Apply appropriate principles and concepts to analyze and interpret data such as maps, charts, diagrams, readings and graphs.	Program tests from ENV 101 and 105	ENV 101, ENV 105, Fall 2018 and 2019	ENV 101 and ENV 105 students	Random sample of 50% of ENV 101 students and all ENV 105 students

**Scoring and analysis of assessment:**

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric/scoring guide.

Departmentally-developed rubric, Multiple-choice answer keys

2. Indicate the standard of success to be used for this assessment.

70% of students scored will score 70% or better on designated assessments.

3. Indicate who will score and analyze the data (data must be blind-scored).

Various ENV instructors

PROGRAM ASSESSMENT PLANNING FORM

Submitted by:

Name: Smita Malpani *Smita Malpani* Date: 9 October, 2019  
Print/Signature

Dept. Chair: Suzanne Albach *Suzanne Albach* Date: 16 October, 2019  
Print/Signature

Dean: \_\_\_\_\_ Date: 11/26/19  
Print/Signature

*Reviewed by C&A 1/9/20*

*Please return completed form to the Office of Curriculum & Assessment, SC 257.*

**PROGRAM PROPOSAL FORM**

- Preliminary Approval** – Check here when using this form for preliminary approval of a program proposal, and respond to the items in general terms.
- Final Approval** – Check here when completing this form after the Vice President for Instruction has given preliminary approval to a program proposal. For final approval, complete information must be provided for each item.

<p><b>Program Name:</b></p> <p><b>Division and Department:</b></p> <p><b>Type of Award:</b></p> <p><b>Effective Term/Year:</b></p> <p><b>Initiator:</b></p>	<p style="text-align: center;"><u>Environmental Science Program</u></p> <p>Math, Natural and Behavioral Science MNBS</p> <p style="text-align: center;"><u>Physical Science Department</u></p> <p> <input type="checkbox"/> AA    <input checked="" type="checkbox"/> AS    <input type="checkbox"/> AAS  <input type="checkbox"/> Cert.    <input type="checkbox"/> Adv. Cert.    <input type="checkbox"/> Post-Assoc. Cert.    <input type="checkbox"/> Cert. of Comp.         </p> <p style="text-align: center;"><u>Fall 2010</u></p> <p style="text-align: center;"><u>Martha Showalter and the Environmental Science Committee Sue Albach, Rob Hagood, Susan Dentel, Emily Thompson, Tracy Schwab, Brad Metz, Kathleen Strnad</u></p>	<p><b>Program Code:</b></p> <p style="text-align: center;"><u>ASENVS</u></p> <p><b>CIP Code:</b></p>
<p><b>Program Features</b></p> <p>Program's purpose and its goals.</p> <p>Criteria for entry into the program, along with projected enrollment figures.</p> <p>Connection to other WCC programs, as well as accrediting agencies or professional organizations.</p> <p>Special features of the program.</p>	<p>To prepare our students for a strong background in dealing with environmental issues and concerns with a global point of view. This program integrates biology, chemistry, geology and physics and is designed to lead to an AS degree which should transfer to 4-year institutions following the MACRAO guidelines. This program is designed to give students first hand lab experiences in studying environmental problems from a scientific perspective. It is ultimately preparing students for careers in resource management, waste management, sustainability, environmental consultation and the like.</p> <p>Students entering this program should anticipate taking courses in Biology, Chemistry, Geology and Physics. No special requirement is required for enrollment in the program.</p> <p>This program utilizes existing courses that have been reviewed and articulated to 4-year institutions. In addition, there are two specialized environmental science courses.</p> <p>It is expected that the first course could meet a General Education lab science course requirement and be offered every semester while the follow-up Environmental Science course would initially be offered on an annual basis.</p>	
<p><b>Need</b></p> <p>Need for the program with evidence to support the stated need.</p>	<p>WCC has committed to building/renovating its buildings to meet LEED specifications. In addition, the President has signed the ACUPCC (American College and University Presidents Climate Commitment). Not only has WCC taken these strong stances on global concerns but the science faculty feel it is imperative that we address through our offerings courses and programs which impact future generations.</p> <p>The Bureau of Labor Statistics has cited Environmental Science as an area of growth, saying, "employment of environmental scientists and specialists is expected to increase by 28 percent between 2008 and 2018, much faster than the average for all occupations."</p> <p><a href="http://www.bls.gov/oco/ocos311.htm">http://www.bls.gov/oco/ocos311.htm</a> (document attached)</p>	

Program Outcomes/Assessment	Outcomes	Assessment method
<p>State the knowledge to be gained, skills to be learned, and attitudes to be developed by students in the program.</p> <p>Include assessment methods that will be used to determine the effectiveness of the program.</p>	<ol style="list-style-type: none"> <li>Students will successfully transfer to a four-year college in a related program</li> <li>Students will perform successfully at a four-year college in a related program</li> </ol>	<ol style="list-style-type: none"> <li>WCC follow-up graduation survey data. Transfer data from EMU.</li> <li>WCC follow-up graduation survey data. Transfer data from EMU.</li> </ol>

Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to [sjohn@wccnet.edu](mailto:sjohn@wccnet.edu) for posting on the website.

Curriculum	General Education Requirements		(33 Credits)
<p>List the courses in the program as they should appear in the catalog. List minimum credits required. Include any notes that should appear below the course list.</p>	ENG 111	Composition I	4
	ENG 226	Composition II	3
	COM 101	Fundamentals of Speaking (or COM 183 or COM 225) <sup>1</sup>	3
	MTH 178	Trigonometry	3
	BIO 101	Concepts of Biology	4
	GLG 100	Introduction to Earth Science	4
	SOC 100	Introduction to Sociology (or ECO 211 or ECO 222 or GEO 101) <sup>1</sup>	3
	PLS 112	Introduction to American Government	3
	PHL 205	Ethics	3
	Arts/Hum	Elective(s) <sup>1</sup>	3
<b>Major/Area Requirements</b>		<b>(15 or 16 Cr)</b>	
CPS 120	Introduction to Programming (or CPS 161 or CPS 171)	3 or 4	
MTH 160	Statistics	4	
CEM 111	General Chemistry I	4	
PHY 111	General Physics I	4	
<b>Environmental Science—Program Concentration</b>		<b>(8 credits)</b>	
ESC 101	Environmental Science I	4	
ESC 201	Environmental Science II	4	
<b>Choose from the following Electives</b>		<b>(at least 6 Credits)</b>	
<p>BIO 103, BIO 102, BIO 107, BIO 227, BIO 228            CEM 122, CEM 211, CEM 222            GLG 104, GLG 103            PHY 122            Social Science MACRAO elective (must be taken if MACRAO is desired)<sup>2</sup></p>			
<b>TOTAL</b>	<b>MINIMUM CREDITS FOR THE PROGRAM</b>	<b>62</b>	

	<b>Notes:</b> <sup>1</sup> For those wishing to transfer to EMU, consider taking either COM 225, GEO 101 or an Arts and Humanities Elective that should meet EMU's diverse world requirement. (See page [75] of the WCC Bulletin for a list of courses). <sup>2</sup> For those who would like to meet MACRAO, a Social Science MACRAO course must be chosen as one of your electives.  BIO 107 transfers to EMU as their BIO 105 (both with same title) Our GLG 103 and 104 each transfer as ESSC 000 (general transfer credit)		
<b>Budget</b>  Specify program costs in the following areas, per academic year:		<b>START-UP COSTS</b>	<b>ONGOING COSTS</b>
	<b>Faculty</b>	\$ .	\$ .
	<b>Training/Travel</b>	.	.
	<b>Materials/Resources</b>	.	.
	<b>Facilities/Equipment</b>	.	.
	<b>Other</b>	.	.
	<b>TOTALS:</b>	<b>\$ .</b>	<b>\$ .</b>
<b>Program Description for Catalog and Web site</b>	To prepare our students for a strong background in dealing with environmental issues and concerns from a global point of view. This program integrates biology, chemistry, geology and physics and is designed to lead to an AS degree which should transfer to 4-year institutions following the MACRAO guidelines. This program is designed to give students first hand lab experiences in studying environmental problems from a scientific perspective as well as propose and implement solutions to sustainability. It is ultimately preparing students for careers in resource management, waste management, sustainability, environmental consultation and the like.		
<b>Program Information</b>	<b>Accreditation/Licensure -</b>  <b>Advisors -</b>  <b>Advisory Committee -</b>  <b>Admission requirements -</b>  <b>Articulation agreements -</b>  <b>Continuing eligibility requirements -</b>		

**Assessment plan:**

Program outcomes to be assessed	Assessment tool	When assessment will take place	Courses/other populations	Number students to be assessed
1. Students will successfully transfer to a four-year college in a related program	1. WCC follow-up graduation survey data. Transfer data from EMU.	Winter 2014 & every 3 years thereafter	Random selection from students who completed the program within the past three years	Approximately 50% of the graduates
2. Students will perform successfully at a four-year college in a related program	2. WCC follow-up graduation survey data. Transfer data from EMU.	Winter 2014 & every 3 years thereafter	Random selection from students who completed the program within the past three years	Approximately 50% of the graduates

**Scoring and analysis plan:**

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric.

EMU transfer data will be generated by Eastern Michigan University. Faculty in the Science departments at WCC will review the data to determine transfer rate and transfer success statistics. Graduate survey data is collected and generated by Institutional Research. This self-reported supplemental data will be used to identify students who successfully transfer to institutions other than EMU.

2. Indicate the standard of success to be used for this assessment.

60% of the students will have enrolled in further education within two years.  
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.

3. Indicate who will score and analyze the data.

Faculty volunteers from the Life and Physical Science departments

4. Explain how and when the assessment results will be used for program improvement.

Assessment data will be reviewed during divisional meetings. Areas of weakness will be identified and changes made to course or program requirements will be implemented as needed.

REVIEWER	PRINT NAME	SIGNATURE	DATE
Department Chair/Area Director	Emily A. Thompson Suzanne Albach	Emily A. Thompson Suzanne M. Albach	2/1/2010 2/1/2010
Dean	Martha Showalter	Martha Showalter	2/1/2010
Vice President for Instruction <input type="checkbox"/> Approved for Development <input checked="" type="checkbox"/> Final Approval	Phyllis Grzegorzczuk	Phyllis Grzegorzczuk	2-26-2010
President	Larry Whitworth	Larry Whitworth	4/7/10
Board Approval			Approved

*logged 2/1/10 sj*  
Office of Curriculum & Assessment