

**Student Outcomes Assessment and Success Report AY2017-18** *Completed reports due from the dean to the Assessment Office via Blackboard by October 15. Deans, assessment coordinators, and/or department chairs set their own internal deadlines for material review and request for refinement if not suitably addressing questions.*

**Unit/Program Name:** \_\_Earth & Environmental Science B.S.\_\_ **Contact Name(s) and Email(s)** \_\_Sandra Brake (Sandra.brake@indstate.edu)\_\_

Before you complete the form below, review your outcomes library and curriculum map to ensure that they are accurate and up to date. If not, you may submit a new version along with this summary. Templates are available on the [assessment website](#).

**Part 1a: Summary of Assessment Activities**

<p><b>a. What learning outcomes did you assess this past year?</b>  If this is a graduate program, identify the <a href="#">Graduate Student Learning Outcome</a> each outcome aligns with.</p>	<p><b>b. (1) What assignments or activities did you use to determine how well your students attained the outcome? (2) In what course or other required experience did the assessment occur?</b></p>	<p><b>c. What were your expectations for student performance?</b></p>	<p><b>d. What were the actual data/results?</b></p>	<p><b>e. What changes or improvements were made or will be made in response to these assessment results or feedback from previous year's report?</b></p>
<p>1. Knowledge of Earth Materials</p>	<p>Successful completion of the core courses of ENVI 380 (Mineralogy), ENVI 382 (Petrology), ENVI 385 (Structural Geology), and ENVI 475 (Sed/Strat). Successful completion by graduating seniors of a quantitative assessment outgoing exam.</p>	<p>Students will be assessed on a scale of 0 to 2 (0= not meeting; 1=meeting; 2=exceeding expectations). Target: 65% of students will receive a 1 or higher on this objective</p>	<p>90% of the 32 students met or exceeded expectations; 10% did not meet expectations. Two graduating seniors met or exceeded expectations on the quantitative outgoing assessment exam.</p>	<p>This outcome exceeds our expectation for understanding Earth materials. We are redesigning the quantitative assessment outgoing exam to specifically target this outcome.</p>
<p>2. Understanding Earth Processes</p>	<p>Successful completion of the core courses of ENVI 170 (Earth Science), ENVI 270 (Earth History), ENVI 380 (Mineralogy), ENVI 382 (Petrology), ENVI 385 (Structural Geology), and ENVI 475 (Sed/Strat). Successful completion by graduating seniors of a quantitative assessment outgoing exam.</p>	<p>Students will be assessed on a scale of 0 to 2 (0= not meeting; 1=meeting; 2=exceeding expectations). Target: 65% of students will receive a 1 or higher on this objective</p>	<p>92% of the 49 students met or exceeded expectations; 8% did not meet expectations. Two graduating seniors met or exceeded expectations on the quantitative outgoing assessment exam.</p>	<p>This outcome exceeds our expectation for understanding Earth processes. We are redesigning the quantitative assessment outgoing exam to specifically target this outcome.</p>

3. Synthesizing Geologic History Based on the Rock Record	Successful completion of the core courses of ENVI 270 (Earth History) and successful completion by graduating seniors of a quantitative assessment outgoing exam.	Students will be assessed on a scale of 0 to 2 (0= not meeting; 1=meeting; 2=exceeding expectations). Target: 65% of students will receive a 1 or higher on this objective	92% of the 13 students met or exceeded expectations; 8% did not meet expectations. Two graduating seniors met or exceeded expectations on the quantitative outgoing assessment exam.	This outcome exceeds our expectation for understanding geologic history based on the rock record. We are redesigning the quantitative assessment outgoing exam to specifically target this outcome.
4. Applying Geologic Techniques	Successful completion of the core course ENVI 389 (Intro to Field Methods) and ENVI 389L (Field Methods lab)	Students will be assessed on a scale of 0 to 2 (0= not meeting; 1=meeting; 2=exceeding expectations). Target: 65% of students will receive a 1 or higher on this objective	100% of the 5 students met or exceeded expectations	This outcome exceeds our expectation for understanding geologic techniques. The faculty annually reviews ENVI 389 to keep pace with changes in technology.
5. Exit survey	The survey evaluates 1) which geologic skills students considered valuable, 2) perceived deficiencies in the program, 3) quality of core courses, 4) quality of research experiences, 5) quality of advising, and 6) overall quality of the B.S. program.	We expect the surveyed aspects of the program to be ranked as <b>Good</b> or higher based on a ranking scale of Excellent, Good, Average, and Below Average.	1) Students valued the following learned skills: analytical analysis, mapping, sample collection, microscope usage, and core logging. 2) Program Deficiencies: One student would have like more field work, including mapping and sampling. 3) Quality of core courses was ranked as good to excellent. 4) Quality of research experience was ranked as good to excellent 5) Quality of advising was ranked as good to excellent 6) Quality of overall program was ranked as excellent.	Based on the survey outcomes, we will investigate the inclusion of more field-based projects in our core curriculum.

Note: *If you would like to report on more than three outcomes, place the cursor in the last cell on the right and hit "tab" to add a new row.*

#### Notes

- a. Use your outcomes library as a reference.
- b. Each outcome must be assessed by at least one direct measure (project, practica, exam, performance, etc.). If students are required to pass an examination to practice in the field, this exam must be included as one of the measures. At least one of the program's outcomes must use an indirect measure (exit interview, focus group, survey, etc.). Use your curriculum map to correlate outcomes to courses.

- c. Identify the score or rating required to demonstrate proficiency (e.g., Students must attain a score of “3” to be deemed proficient; at least 80% of students in the program will attain this benchmark.”
- d. Note what the aggregate level of proficiency actually was and the number of students included in the cohort or sample (e.g., “85% of the 25 students whose portfolios were reviewed met the established benchmark”).

**Part 1b: Continuous Quality Improvement**

In no more than one page, summarize 1) the discoveries assessment has enabled you to make about student learning (a. What specifically do students know and do well—and less well? b. What evidence can you provide that learning is improving?); 2) what your assessment plan will focus on in the coming year; and 3) how will this information be shared with other stakeholders?

Assessment outcomes for the Geoscience Program in the Department of Earth and Environmental Systems will be communicated to the university and will be available in the Department. The faculty will also discuss the outcomes at Department meetings. The rubric used to assess outcomes will be posted on the Department website.

**Part 2a: Summary of Student Success Activities**

Based on the results of your assessment of student learning outcomes from Part 1 above, reflect on how this data will impact student success within your unit/program.

a. What goals/objectives were established this past year to aid student performance, retention, persistence, and completion?	b. What primary action steps were taken to make progress on each goal and who was responsible?	c. What data informs progress on each goal?	d. What were some accomplishments or achievements for each goal and/or challenges confronted?	e. Please indicate goals that are continuing and any goals that will replace a previous goal. Any additional goals can also be added on a new line.
<p>1. <b>Reserve a section of ENVI 110L for freshman majors only to facilitate retention of first year students.</b> Faculty members are assigned lab sessions to mentor students through a research project and to exposed them to professional techniques used within their discipline.</p>	<p>Each fall semester one lab section is reserved for majors only. Jennifer Latimer is responsible for organizing the labs and instructors.</p>	<p>In Fall 2017, ten EES majors participated in the majors only section. Of these ten majors, seven were retained at ISU and in EES.</p>	<p>Students worked in groups on separate research projects with four different faculty mentors (Aldrich, Latimer, Speer, and Stone). Each lab session was designed for data collection. Each group presented their results at the end of the semester via oral presentations. Students also worked with Sandra Brake to develop resumes and CVs to use when applying for</p>	<p>This goal is being reassessed because ENVI 110 is only a core requirement in the newly proposed environmental geoscience B.A. and not in the geology B.S.</p>

			internships and research opportunities.	
<b>2. Advertising tutoring opportunities for the cognate sciences.</b>	Students were informed in classes about tutoring services. Additionally, they receive information on tutoring during advising sessions. Tutoring services were also posted on bulletin boards in the department. The geoscience advisor is responsible for notifying students about tutoring services on campus.	Tutoring opportunities were discussed with all upper class geoscience majors during their advising session.	At least 5 students took advantage of online math tutoring services and indicated that the service helped them understand the math concept, leading to their success in the course.	The advisor will continue to discuss and post tutoring service opportunities.
<b>3. Discipline-related faculty meetings to discuss outcomes results.</b>	The geoscience faculty met several times to discuss retention of majors and student success in the classroom.	Interim and exit surveys were used to identify courses that may need modification. Additionally, students were asked during advising sessions to address courses of concern.	Student feedback has identified two core course (ENVI 385 and 389) for potential modification.	The faculty will continue to review student input on course evaluations.
<b>4. Encourage participation in the Environmental Science Club.</b>	Environmental Science Club meeting notices are posted in the science hallway and announced in the geoscience classes. Additionally, the academic advisor communicates freshman contact information to the president of the club to inform the freshman about club opportunities. Jeffery Stone is the faculty supervisor of the club.	Out of a total of 31 majors, 7 upper classmen and 4 freshmen (total of 35%) participated regularly in club activities during the academic year.	The club met every two weeks and hosted a number of field trips and service activities.	We will continue to encourage students to participate in this social activity.
<b>5. Provide a career readiness session.</b>	The geoscience faculty are responsible for implementing this goal.	A total of 30 students in the department attended this event.	The career readiness session covered the timeline and processes that need to be considered when applying for professional positions or for graduate school.	The faculty will continue to offer this session each spring and are considering offering a half-semester, 1 credit course on career readiness.

## Notes

- a. These goals could be program/department wide but may also be focused on specific sub-populations of interest (e.g., service course student performance, transfer students, part-time students, students of a particular class year, students of color, etc.).
- c. Retention and completion data, D/F/drop rates, credit hour productivity (defined as credit hour enrollment at start of term versus credit hours earned at end of term) are common data examples. See [Blue Reports](#) database (access from Linda Ferguson in Institutional Research) or the [Office of Institutional Research](#) for ideas.

## **Part 2b: Continuous Quality Improvement**

**In no more than one page, summarize 1) the discoveries that attention to student performance, retention, persistence, and completion has enabled you to make about program/department systems, processes, and norms as it effects students; and 2) how this will positively impact student success, including with regard to the readiness of students for graduate study or a career?**

The concentrations in Geoscience and Atmospheric and Surface Processes changed in 2018 – 2019 to two degree programs (i.e., Geology and Environmental Geoscience). Student success outcomes will be more relevant for the next academic year.

*Please prepare this report as a Word document. Do not include any attachments. Instead, provide links to important supporting materials (e.g., detailed—but not student-specific--assessment results; rubrics; minutes; etc.), or upload them to the college's assessment site in Blackboard.*

Dear Sandra,

Thank you so much for sharing your assessment process and findings for AY 2017-18 with the Assessment and Student Success Councils. You will find a comprehensive synthesis of the feedback compiled by both groups below. It is understood that some of the feedback might encompass practices that you already engage in but that are not documented in this report. As the purpose of this evaluation is focused on recognizing great work and helping faculty improve assessment practice, it is not necessary to retroactively add documentation. Please feel free to let me know if you have any questions or if there is any way I can assist you in further developing assessment in your program.

This report will be shared with the Associate Dean(s) and Dean of your college and summarized findings will be shared as composite college/institutional data with the President's Office and the Provost's team.

Sincerely,

Kelley (x7975)

<b>Program: BS Earth &amp; Environmental Science</b>	
<b>Assessment Practice Overall Rating:</b> Developing (1.44/3.00)	
<b>Student Success Practice Overall Rating (notes below in blue):</b> Mature (2.50/3.00)	
<b>Strengths</b>	<b>Recommendations</b>
<ul style="list-style-type: none"><li>• Most learning outcomes are clear and measurable.</li><li>• Clear information about student performance relative to goals.</li><li>• Great use of the exit survey as an indirect measure to pair with direct measure findings for influencing changes to the program.</li><li>• Good information provided about sharing results and involving faculty in the assessment process and use of findings.</li><li>• <b>Early engagement of freshman majors with mentors.</b></li><li>• <b>Availability of tutoring, extracurricular activities, and career readiness efforts.</b></li><li>• <b>Engagement of students and faculty in discussions about retention.</b></li></ul>	<ul style="list-style-type: none"><li>• Some learning outcomes are less measurable than others. For outcome 2, consider specifying how students will show their "understanding" of earth processes – describing, diagramming, etc. This will allow you to more precisely measure student achievement of the outcome. Exit Survey is also a strategy, not an outcome. Is there an outcome that it was intended to assess? If all of the above, it can be listed in column b as an indirect measure to complement the other strategies listed.</li><li>• Using final course grades as assessment of student achievement of a specific learning outcome is typically not advised, as course grades typically represent achievement of more than one learning outcome. If the courses listed truly only addressed the singular outcome listed then maybe it could work, but that would be a stretch. Taking student performance data from specific assignments in certain classes is a better way to gather accurate, and therefore more useful, data on student learning relative to a specific outcome. If using just one point of assessment paints too limited a picture, consider collecting data from multiple assignments at different points of the curriculum.</li><li>• Be clear how course grades were translated into student performance expectations on a scale of 0-2. More details about the</li></ul>

	<p>senior outgoing exam would be helpful as well – if this is applicable to all learning outcomes, it's most appropriate to only use the score for questions related to the specific outcomes to be used as a reflection of achievement of those outcomes.</p> <ul style="list-style-type: none"><li>• Add information about the number of students taking the outgoing assessment exam or report meeting/exceeding expectations as a percentage rather than number of students.</li><li>• Refining your assessment practices will likely yield more useful information for analysis and planning for how to improve or continue to support student learning. The data from the exit survey is really the most actionable information from this cycle. Consider describing how to go about including more field-based projects within the constraints of the program.</li><li>• <b>Consider making goals for next cycle more aggressive.</b></li></ul>
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*Assessment (Parts 1a & 1b) Scoring Rubric is included below. Student Success (Parts 2a & 2b) Scoring Rubric is included below with no notations just for your reference (the SSC did not choose to report in this way).*

*Score was calculated on a 0 (undeveloped), 1 (developing), 2 (mature), 3 (exemplary) scale.*

Evaluation Criteria	Exemplary	Mature	Developing	Undeveloped
<p><b>Student Learning Outcomes</b></p>	<p>At least one learning outcome that is aligned with program coursework is assessed this cycle.</p> <p>Learning outcome(s) is specific, measurable, and student-centered.</p> <p>Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.)</p> <p>Learning outcome(s) directly link to college, institutional, and/or accreditor goals/standards.</p>	<p>At least one learning outcome that is aligned with program coursework is assessed this cycle.</p> <p>Learning outcome(s) is specific, measurable, and student-centered.</p> <p>Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.)</p>	<p>At least one learning outcome that is aligned with program coursework is assessed this cycle.</p> <p>Learning outcomes(s) is measurable.</p>	<p>No learning outcomes are identified for assessment or the outcomes that are identified are not linked to program outcomes aligned with program coursework (e.g. – curriculum map) or are not measurable.</p>
<p><b>Performance Goals &amp; Measures</b></p>	<p>Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.).</p> <p>Identified measures are designed to accurately reflect student learning, including at least one direct measure.</p> <p>Tools used to measure student performance are described and were reviewed for validity or trustworthiness prior to use (note this in the report; attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).</p>	<p>Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.).</p> <p>Identified measures are designed to accurately reflect student learning, including at least one direct measure.</p> <p>Tools or processes for evaluating student performance on measures are described (attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).</p>	<p>Performance goal(s) is identified for each learning outcome.</p> <p>Identified measures (ex: assignments, projects, tests, etc.) are poorly suited to performance goals or are solely indirect measures.</p> <p>Tools or processes for evaluating student performance on measures are not described.</p>	<p>No goals for student performance of learning outcomes is identified, and/or no measures are provided.</p>

<b>Analysis &amp; Results</b>	<p>Data is collected using the measures and tools identified.</p> <p>Results are reported with clear description of quality analysis (e.g., analysis follows accepted statistical or qualitative procedures).</p> <p>Results are shared in relation to performance goals.</p> <p>Results are discussed in relation to college, institutional, and/or accretor goals/standards.</p>	<p>Data is collected using the measures and tools identified.</p> <p>Results are reported with clear description of analysis (e.g., analysis follows accepted statistical or qualitative procedures).</p> <p>Results are shared in relation to performance goals.</p>	<p>Data is collected using the measures and tools identified.</p> <p>Results are reported with little description of analysis.</p>	<p>No data is being collected.</p> <p>No results are provided.</p>
<b>Sharing &amp; Use of Results for Continuous Improvement</b>	<p>Clear information is provided about sharing and using results to inform practice.</p> <p>Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice.</p> <p>A plan for adjusting performance, goals, assessment, and/or program components based on results is outlined.</p>	<p>Clear information is provided about sharing and using results to inform practice.</p> <p>Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice.</p>	<p>Limited information is provided about sharing or using results to inform practice.</p> <p>Some discussion of what was learned from results is provided.</p>	<p>No information is provided about sharing or using results to inform practice.</p> <p>No evidence of reflection on results is provided (ex: discussion, conclusions drawn)</p>
<b>Overall Rating</b>	<input type="checkbox"/> <b>Exemplary</b>	<input type="checkbox"/> <b>Mature</b>	<input checked="" type="checkbox"/> <b>Developing</b>	<input type="checkbox"/> <b>Undeveloped</b>

**Student Success Activities Report Rubric (Part 2 of Student Outcomes Assessment Report)Unit/Program:**

**Office of Student Success/Office of Assessment & Accreditation Evaluation Date:**

<b>Evaluation Criteria</b>	<b>0 Undeveloped</b>	<b>1 Developing</b>	<b>2 Mature</b>	<b>3 Exemplary</b>
<b>Goals/ Objectives</b>	No goals/objectives are identified.	Goals/objectives are poorly suited to addressing student performance, retention, persistence, and/or completion.  Goals/objectives may also be modest at best such that little effort is required.	Goals/objectives are generally clear and reasonably well suited to addressing student performance, retention, persistence, and/or completion.  Goals/objectives are also generally at least moderately aggressive such that appropriate effort is required.	Goals/objectives are all clear and well suited to addressing student performance, retention, persistence, and/or completion.  Goals/objectives are also at least moderately aggressive in all cases such that appropriate effort is required.
<b>Action Steps</b>	No action steps are identified.	Action steps are weak, underdeveloped, and/or poorly suited to making progress on goals/objectives.  No person(s) or group(s) indicated who will be responsible for the actions.	Action steps are generally clear and reasonably well suited to making progress on goals/objectives.  Person(s) or group(s) responsible for the actions are indicated in most cases.	Action steps are all clear and well suited to making progress on goals/objectives  Person(s) or group(s) responsible for each action are indicated, ideally with a timeline.
<b>Data that Informs Progress on Each Goal/Objective</b>	No data, quantitative or qualitative, is identified.	Data to inform progress are poorly suited to measure progress on goals/objectives.	Data to inform progress are generally well suited to measure progress on goals/objectives.	Data to inform progress are all well suited to measure progress on goals/objectives.
<b>Assessment of Outcomes and Continuous Improvement</b>	For goals/objectives in place the prior year, no reflection provided on achievements/challenges, sharing results, and/or plans for improvement or change based on results.  No reflection on outcome assessment plan for continuous improvement provided for new goals/objectives.	For goals/objectives in place the prior year, modest at best reflection provided (and/or is vague or of questionable connection to results) on achievements/challenges, sharing results, and/or plans for improvement or change based on results.  Modest at best reflection on assessment plan for continuous improvement provided for new goals/objectives.	For goals/objectives in place the prior year, generally appropriate reflection provided (and is reasonably well connected to results) on achievements/challenges, sharing results, and/or plans for improvement or change based on results.  Reasonable reflection on assessment plan for continuous improvement provided for new goals/objectives.	For goals/objectives in place the prior year, strong reflection is provided in all cases (and is well connected to results) on achievements/challenges, sharing results, and/or plans for improvement or change based on results.  Well-developed reflection on assessment plan for continuous improvement provided for new goals/objectives.
<b>Overall Rating</b>	<input type="checkbox"/> <b>Undeveloped</b>	<input type="checkbox"/> <b>Developing</b>	<input type="checkbox"/> <b>Mature</b>	<input type="checkbox"/> <b>Exemplary</b>