



# Student Learning Assessment Report, Academic

Report Year

2022-2023

Program

Environmental Science Major

Department Head

Mary Beth Kolozsvary

Submitted By

Mary Beth Kolozsvary

Previously Submitted Reports

2021-2022 Environmental Science Major

Mission

Department of Environmental Studies and Sciences Mission Statement: Our mission is to provide a broad-based, interdisciplinary education for students interested in the identification, study and solution of problems affecting the natural world. By integrating perspectives from the humanities, social and biophysical sciences in the best liberal arts tradition, our curriculum is designed to produce not only ethical and capable environmental professionals but environmentally literate, responsible citizens. Our emphasis on experiential learning, internship opportunities, communication skills, and teamwork creates an environment in which critical thinking and leadership skills are fostered that will serve students well in the workplace or the pursuit of advanced degrees. We are committed to attracting faculty members with a passion for teaching and to support them in the scholarly and research endeavors that keep them current and vibrant in the classroom. Our goal is to serve as a resource of environmental expertise for both campus and community and to create lasting partnerships.

## Assessment

### 1. Major/Program Student Learning Outcomes

Student will be able to...

Interdisciplinary Reasoning. Make reasoned and informed judgments about contemporary environmental issues from an interdisciplinary perspective.

### 2. Phase

Check all that apply

- Planning/ determining procedure
- Planning/ Redesigning based on past assessment
- Collecting/ analyzing assessment data
- Discussing/ using result
- Determining if Changes had an Impact on Student Learning
- Objective not assessed this year

### 3. Assessment Procedures (Planning/ determining)

Method: (ex. tests, presentations, research paper, describe the assessment course and student sample when it is applicable, etc.)

This assessment is currently under review and revision. Assignments evaluated will include essays, issue briefs, case study problems – individual and/or group, and oral presentations.

When does assessment occur?

Course-specific, likely towards the end of the semester.

How often does assessment occur?

Under review and revision, likely every 1 to 3 years

Criteria (How do you know students are achieving learning outcome?)

Under review and revision.

Criteria:

- 80% of BS students able to meet or exceed standard of 80%

### 4. Assessment Results (Collecting/ analyzing, please identify the sample size and course number when appropriate)

Not assessed this year.

### Learning Outcome Met? (Based on Criteria)

Not assessed

### 5. Use of Results (Discussing/ using results)

Comments/Next Steps:

- The language of the Department learning goals is vague and difficult to assess. The Department is in the process of drafting revised learning goals. This timing is good as we will be undergoing program review as well. Ideally, this will be completed in AY 2022-23, so that next year's assessment will reflect the revised learning goals.
- Once revised learning goals have been adopted, the Department will update the course map, identify the criteria and thresholds for assessment purposes. Based on discussions with the Siena assessment experts, learning goals will likely differ for BA and BS majors. Once we have adopted new learning goals, we will work towards identifying capstone-like and other assignments in upper-level major courses that can be used to assess each learning goal.

### 6. Determining if changes impacted student learning

Not assessed this year.

## Assessment

### 1. Major/Program Student Learning Outcomes

Student will be able to...

Effective Communication. Effectively and efficiently describe, advocate, and interpret natural phenomena in oral, written, and visual communications.

### 2. Phase

Check all that apply

- Planning/ determining procedure
- Planning/ Redesigning based on past assessment
- Collecting/ analyzing assessment data
- Discussing/ using result
- Determining if Changes had an Impact on Student Learning
- Objective not assessed this year

### 3. Assessment Procedures (Planning/ determining)

Method: (ex. tests, presentations, research paper, describe the assessment course and student sample when it is applicable, etc.)

This assessment is currently under review and revision. Assignments evaluated will include essays, oral presentations, videos, infographics, and messaging tailored to target audiences.

As per recommendations, we assessed different forms of Effective Communication separately. Specifically, we evaluated: oral, written, and visual forms separately.

### When does assessment occur?

Course-specific; likely towards the end of the semester

### How often does assessment occur?

Under review and revision; likely every 1-3 years

### Criteria (How do you know students are achieving learning outcome?)

Under review and revision.

Criteria:

- 80% of BS students able to meet or exceed standard of 80%

### 4. Assessment Results (Collecting/ analyzing, please identify the sample size and course number when appropriate)

ORAL:

Two courses; three assignments:

ENVA 425: Applied Wildlife Research - one assignment; ENVA 450 Conservation Biology - two assignments

Assignment 1 of 3

Course Assessed: ENVA 425, Applied Wildlife Research

- Fulfills an upper-level environmental elective requirement. Twelve students: 6 BS (ENVS/ENVE) majors and 8 BA (ENVA) majors. Prerequisites: permission of instructor.

Brief Description of the Assignment(s)

- Students delivered an oral presentation as their final assessment for the course research project. Students presented a condensed, scientific study following specific criteria used for their evaluation.

Type of Assessment

- Students designed and delivered a difficult and intensive oral presentation supported by slides to communicate scientific research and information about a natural phenomenon.

Any differences noted between BS and BA majors?

- Yes; ESS BS majors achieved a full letter grade higher than ESS BA majors

Number of B.S. majors that took this assessment: 6

6 out of 6 B.S. majors scored 80% or higher; 100%

A range (90% and above): 6

B range (80-89%): 0

C range (70-79%): 0

D range (60-69%): 0

F range (below 60%): 0

Assignment Outcomes:

- 100% of BS majors scored 80% or higher.

Assignment 2 of 3

Course Assessed: ENVA 450, Conservation Biology

- Enrollment of 24 students, 17 ESS BS majors, and 7 ESS BA majors.
- A required course for Environmental Science (B.S.) majors, and used to fulfill an upper level elective requirement for Environmental Studies (BA) majors.

Brief Description of the Assignment(s)

- Species Conservation Profiles
- Students prepare and give an oral presentation on a "conservation story" of interest to them, allowing students to dig deeply into a topic of their choosing, and allows the class to get exposure to a variety of "conservation-in-action: stories.
- The presentations can focus on a single species; group of species; ecosystem; or illustrates a conservation issue, technique, or management approach.
- The presentation can focus on any scale – a specific location, state, regional, or global conservation story.

Type of Assessment

- The assessment was based on several broad areas: 1) presentation completeness (e.g., were all key areas presented, were key points emphasized, appropriate background presented); 2) clarity (e.g., was it presented clearly, was it easy to follow); 3) was the presentation topic clearly related to the concepts and material we cover in class; 4) were the slides effective (e.g., amount of text per slide, visuals, graphics); and were sources cited/photos credited.

Any differences noted between BS and BA majors?

- No noticeable differences between the performance of our B.S. majors versus our B.A. majors.

Number of B.S. majors that took this assessment: 17

17 out of 17 B.S. majors scored 80% or higher; 100%

A range (90% and above): 17

B range (80-89%): 0

C range (70-79%): 0

D range (60-69%): 0

F range (below 60%): 0

Assignment Outcomes:

- 100% of BS majors scored 80% or higher.

Any additional thoughts:

No, they did uniformly well on this assignment. Our students tend to do well on oral presentation assignments.

Assignment 3 of 3

Course Assessed: ENVA 450, Conservation Biology

- Enrollment of 24 students, 17 ESS BS majors, and 7 ESS BA majors.

- A required course for Environmental Science (B.S.) majors, and used to fulfill an upper level elective requirement for Environmental Studies (BA) majors.

#### Brief Description of the Assignment(s)

- Reconciliation Ecology Action Plan – IGNITE presentation
- Students worked in small groups (3-4 students) to prepare a Reconciliation Ecology Action Plan. Creating these plans allowed students to explore and experience the planning process that goes into developing and implementing many of the concepts of reconciliation ecology at Siena College's campus. The proposed project needed to be realistic and should be a plan that could be implemented, largely or partially, by students.
- This portion of the assignment is on the "IGNITE" oral presentation on a Reconciliation Ecology Action Plan for Siena College's campus. This was done using 20 slides, each slide set to automatically advance in 15 seconds – so the presentations were exactly 5 minutes in length.

#### Type of Assessment

- The assessment was based on several broad areas: 1) presentation completeness; 2) clarity; 3) was the presentation topic clearly related to the concepts and material we cover in class; 4) were the slides effective (e.g., amount of text per slide, visuals, graphics); and were sources cited/photos credited.
- Emphasis was on completeness and clarity of presentation, and students were not penalized if they read from notecards.

#### Any differences noted between BS and BA majors?

- No noticeable differences between the performance of our B.S. majors versus our B.A. majors.

Number of B.S. majors that took this assessment: 17

17 out of 17 B.S. majors scored 80% or higher; 100%

A range (90% and above): 17

B range (80-89%): 0

C range (70-79%): 0

D range (60-69%): 0

F range (below 60%): 0

#### Assignment Outcomes:

- 100% of BS majors scored 80% or higher.

#### Any additional thoughts:

- No, they did exceptionally well on this assignment. Our students tend to do well on oral presentation assignments.
- Although our students typically do well on oral presentations, this assignment was very challenging for them. Because they only had 15 seconds per slide and the slides automatically advanced, they were forced to practice. It was clear that they did the work, chose their words wisely, and practiced.
- As a result, this was the best set of student presentations that I have seen at Siena College. All were amazing!

#### WRITTEN:

Two courses; two assignments:

ENVA 425: Applied Wildlife Research; ENVA 450 Conservation Biology

#### Assignment 1 of 2

Course Assessed: ENVA 425, Applied Wildlife Research

- Fulfills an upper-level environmental elective requirement. Twelve students: 6 BS (ENVS/ENVE) majors and 8 BA (ENVA) majors. Prerequisites: permission of instructor.

#### Brief Description of the Assignment(s)

- Students completed a final term paper in the form of a scientific article, prepared as a manuscript ready to be submitted for publication. This final assignment served as part of the final assessment for the course.

#### Type of Assessment

- Students wrote a difficult and intensive paper to communicate their scientific research and information about a natural phenomenon.

#### Any differences noted between BS and BA majors?

- Maybe; ESS B.S. majors achieved higher scores than ESS B.A. majors

Number of B.S. majors that took this assessment: 6

6 out of 6 B.S. majors scored 80% or higher; 100%

A range (90% and above): 6

B range (80-89%): 0

C range (70-79%): 0

D range (60-69%): 0

F range (below 60%): 0

#### Assignment Outcomes:

- 100% of BS majors scored 80% or higher.

#### Assignment 2 of 2

Course Assessed: ENVA 450, Conservation Biology

- Enrollment of 24 students: 17 ESS BS majors and 7 ESS BA majors

- Enrollment of 24 students, 17 ESS BS majors, and 7 ESS BA majors.
- A required course for Environmental Science (B.S.) majors, and used to fulfill an upper level elective requirement for Environmental Studies (BA) majors.

#### Brief Description of the Assignment(s)

- Reconciliation Ecology Action Plan – written plan
- Students worked in small groups (3-4 students) to prepare a Reconciliation Ecology Action Plan. Creating these plans allowed students to explore and experience the planning process that goes into developing and implementing many of the concepts of reconciliation ecology at Siena College's campus. The proposed project needed to be realistic and should be a plan that could be implemented, largely or partially, by students.
- This portion of the assignment is on the written plan on a Reconciliation Ecology Action Plan for Siena College's campus.

#### Type of Assessment

- The assignment was evaluated based on the quality and completeness of each of the required sections.
- It had to be clear enough that you could hand it to someone that was unfamiliar with the proposal, and that could be implemented it without asking more than a few questions. It needed to be "shovel ready."
- Students submitted a draft plan, and detailed comments on each section (and the entire plan).

#### Any differences noted between BS and BA majors?

- No noticeable differences between the performance of our B.S. majors versus our B.A. majors.

Number of B.S. majors that took this assessment: 17

17 out of 17 B.S. majors scored 80% or higher; 82%

A range (90% and above): 13

B range (80-89%): 1

C range (70-79%): 0

D range (60-69%): 3

F range (below 60%): 0

#### Assignment Outcomes:

- 82% of BS majors scored 80% or higher.

#### Any additional thoughts:

- No, both BS and BA students did similar on this assignment.
- Although we meet the learning goal that we set, it is apparent (and not surprising) that the students did not do as well on this form of communication, as compared to the oral and visual presentations.
- Again, not surprising – they often excel in their oral presentations, but are weaker in communicating in written form.

#### VISUAL:

Three courses; three assignments:

ENVA 425: Applied Wildlife Research; ENVA 450 Conservation Biology; ENVA 460, GIS: Environmental Applications

#### Assignment 1 of 3

Course Assessed: ENVA 425, Applied Wildlife Research

- Fulfills an upper-level environmental elective requirement. Twelve students: 6 BS (ENVS/ENVE) majors and 8 BA (ENVA) majors. Prerequisites: permission of instructor.

#### Brief Description of the Assignment(s)

- Approximately 1/3 of the way through the course, students created a visual representation, or "conceptual model" of their research topic in an interconnected, systems-approach to the issue.

#### Type of Assessment

- Students designed a conceptual model to represent the system and variables influencing their research topic and issue to communicate scientific research on natural phenomena.

#### Any differences noted between BS and BA majors?

- Yes; ESS BS majors performed at a higher level than ESS BA majors

Number of B.S. majors that took this assessment: 6

6 out of 6 B.S. majors scored 80% or higher; 100%

A range (90% and above): 4

B range (80-89%): 2

C range (70-79%): 0

D range (60-69%): 0

F range (below 60%): 0

#### Assignment Outcomes:

- 100% of BS majors scored 80% or higher.

#### Assignment 2 of 3

Course Assessed: ENVA 250, Ecosystem Ecology

- Enrollment of 24 students, 12 ESS BS majors, and 12 ESS BA majors.
- A required course for all ESS majors.

Brief Description of the Assignment(s)

- Students worked in small groups (n=2 or 3) to design an infographic for a key ecological concept.
- Before creating the infographic, the students were given the target audience: science and non-science undergraduates taking a course (majors or non-majors course).
- The students also got their choice of ecological concept "approved" and the students completed a planning worksheet, which included a flow chart of the steps to create an infographic, and a series of questions to drive the infographic conceptualization and design process. clearly identifying the target audience, as well as clearly identify the key points you want to convey.

Type of Assessment

- The infographics were evaluated based on content (e.g., how well the infographic convey key aspects of the ecological concept, if all key aspects included and clear) and presentation (e.g., how well the graphics, pictures, and other visuals contribute to the overall message, if the visuals were used effectively).

Any differences noted between BS and BA majors?

- No noticeable differences between the performance of our B.S. majors versus our B.A. majors.

Number of B.S. majors that took this assessment: 12

12 out of 17 B.S. majors scored 80% or higher; 82%

A range (90% and above): 9

B range (80-89%): 3

C range (70-79%): 0

D range (60-69%): 0

F range (below 60%): 0

Assignment Outcomes:

- 100% of BS majors scored 80% or higher.

Any additional thoughts:

- All students did well on this assignment, with the same breakdown for both BS and BA track students – 75% earning As and 25% earning Bs.
- This is the first time I gave this assignment in ENVA 250 Ecosystem Ecology, and it was a great way for students to demonstrate the ability to explain a complicated simply – emphasizing understanding of basic scientific concepts and communication skills.
- This assignment will likely continue to be offered, perhaps with some fine tuning to make it even better.

Assignment 3 of 3

Course Assessed: ENVA 460, GIS: Environmental Applications

- Enrollment of 15 students, 8 ESS BS majors, and 7 ESS BA majors.
- A required course for all ESS majors.

Brief Description of the Assignment(s)

- The assignment is the final poster presentation for their GIS course project. Each student uses GIS to examine an environmental issue or topic and presents their work in a poster presentation.

Type of Assessment

- Students are evaluated on their GIS maps and analysis.

Number of B.S. majors that took this assessment: 8

7 out of 8 B.S. majors scored 80% or higher; 87.5%

A range (90% and above): 3

B range (80-89%): 4

C range (70-79%): 0

D range (60-69%): 1

F range (below 60%): 0

Assignment Outcomes:

- 87.5% of BS majors scored 80% or higher.

**Learning Outcome Met? (Based on Criteria)**

Yes ▼

**5. Use of Results (Discussing/ using results)**

Comments/Next Steps:

- The language of the Department learning goals is vague and difficult to assess. The Department is in the process of drafting revised learning goals. This timing is good as we will be undergoing program review as well. Ideally, this will be completed in AY 2023-24, so that next year's assessment will reflect the revised learning goals.
- Once revised learning goals have been adopted, the Department will update the course map, identify the criteria and thresholds for assessment purposes. Based on discussions with the Siena assessment experts, learning goals will likely differ for BA and BS majors. Once we have adopted new learning goals, we will work towards identifying capstone-like and other assignments in upper-level major courses that can be used to assess each learning goal.

## Assessment

**1. Major/Program Student Learning Outcomes**

*Student will be able to...*

Technical Competency. Select and apply the appropriate analytical tool for environmental planning, monitoring, and restoration efforts.

**2. Phase**

*Check all that apply*

- Planning/ determining procedure**
- Planning/ Redesigning based on past assessment**
- Collecting/ analyzing assessment data**
- Discussing/ using result**
- Determining if Changes had an Impact on Student Learning**
- Objective not assessed this year**

**3. Assessment Procedures (Planning/ determining)**

**Method: (ex. tests, presentations, research paper, describe the assessment course and student sample when it is applicable, etc.)**

This assessment is currently under review and revision. Assignments evaluated will include quantitative analysis in homework problems, labs, exam questions; use of technical tools and programs to solve analytical problems; use of standardized assessment criteria to inform decision-making in environmental and conservation fields.

**When does assessment occur?**

Course-specific; likely towards the end of the semester

**How often does assessment occur?**

Under review and revision; likely every 1-3 years

**Criteria (How do you know students are achieving learning outcome?)**

Under review and revision.

Criteria:

- 80% of BS students able to meet or exceed standard of 80%

**4. Assessment Results (Collecting/ analyzing, please identify the sample size and course number when appropriate)**

Not assessed this year.

**Learning Outcome Met? (Based on Criteria)**

**5. Use of Results (Discussing/ using results)**

Last year, we used three courses and multiple assignments to assess this learning goal. Initial analysis indicates that adjustments should be considered to meet this learning goal. This will be the focus of post-assessment discussions.

To date, adjustments have been made in ENVA 250, which consisted of beginning a slower, more hands-on guided start to working with quantitative data and tools used to analyze data and determine feasible, supportive approaches supported by these data. This was followed by scaffolded, supported incremental projects working with these tools. Although the effectiveness of these steps have not been evaluated quantitatively, initial signs are very promising. It may take a couple years to see results of these efforts.

Additional Comments/Next Steps:

- The language of the Department learning goals is vague and difficult to assess. The Department is in the process of drafting revised learning goals. This timing is good as we will be undergoing program review as well. Ideally, this will be completed in AY 2022-23, so that next year's assessment will reflect the revised learning goals.
- Once revised learning goals have been adopted, the Department will update the course map, identify the criteria and thresholds for assessment purposes. Based on discussions with the Siena assessment experts, learning goals will likely differ for BA and BS majors. Once we have adopted new learning goals, we will work towards identifying capstone-like and other assignments in upper-level major courses that can be used to assess each learning goal.

**6. Determining if changes impacted student learning**

Additional data will be gathered this year, and will determine if changes resulted in any changes in student learning.

## Assessment

**1. Major/Program Student Learning Outcomes**

*Student will be able to...*

Understanding Connections. Understand the connections between societal choices and sustainable outcomes for all living creatures and the physical environment.

**2. Phase**

*Check all that apply*

- Planning/ determining procedure**
- Planning/ Redesigning based on past assessment**
- Collecting/ analyzing assessment data**
- Discussing/ using result**
- Determining if Changes had an Impact on Student Learning**
- Objective not assessed this year**

**3. Assessment Procedures (Planning/ determining)**

**Method: (ex. tests, presentations, research paper, describe the assessment course and student sample when it is applicable, etc.)**

This assessment is currently under review and revision.

**When does assessment occur?**

Course-specific, likely towards the end of the semester.

**How often does assessment occur?**

Under review and revision, likely every 1 to 3 years

**Criteria (How do you know students are achieving learning outcome?)**

Under review and revision



**1. Major/Program Student Learning Outcomes**

Student will be able to...

Social Responsibility. Recognize that human impacts on the environment may have disproportionate effects on the poor and the marginalized and be equipped to address environmental inequities in their communities and beyond.

**2. Phase**

Check all that apply

- Planning/ determining procedure
- Planning/ Redesigning based on past assessment
- Collecting/ analyzing assessment data
- Discussing/ using result
- Determining if Changes had an Impact on Student Learning
- Objective not assessed this year

**3. Assessment Procedures (Planning/ determining)**

**Method: (ex. tests, presentations, research paper, describe the assessment course and student sample when it is applicable, etc.)**

This assessment is currently under review and revision.

**When does assessment occur?**

Course-specific, likely towards the end of the semester.

**How often does assessment occur?**

Under review and revision, likely every 1 to 3 years.

**Criteria (How do you know students are achieving learning outcome?)**

Under review and revision

# Package History

Date	User	Action
10/16/2023 8:59:37 PM	Mary Beth Kolozsvary	Submitted 'Student Learning Assessment Report'
10/16/2023 9:00:23 PM	Institutional Effectiveness	Received
10/16/2023 9:00:24 PM	Mary Beth Kolozsvary	Received
10/16/2023 9:00:24 PM	School of Science - Asst. Dean	Received
10/16/2023 9:00:24 PM	Tom Giarla	Received
10/16/2023 9:00:24 PM	School of Science - Dean	Received
10/16/2023 9:00:25 PM	Provost and Senior Vice President	Received
10/17/2023 6:42:07 AM	Margaret Madden	Decision Approved on step 'Provost and Senior Vice President'
10/17/2023 9:33:30 AM	Tom Giarla	Decision Approved on step 'SLAC Coordinator'