Academic Program Assessment Report

Assessment is a term commonly used to encompass the process of gathering and using evidence to guide improvements.

SACSCOC requires that an institution "identifies expected outcomes, assesses the extent to which it achieves these outcomes, and provides evidence of seeking improvement based on analysis of the results".

Academic Program

Environmental Science

Submission Year

2019-2020

Ex. If the report you are submitting is due October 1, 2019, choose 2019-2020.

Assessment Coordinator Name

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Enter Assessment Coordinator Email

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If more than one coordinator, please choose one for emails to be sent to.

Program Goal

Goal

Goal 1

Program Goals are broad and overarching statements about the skills, knowledge, and dispositions students are expected to gain by the end of their course of study (big picture). They support the Institution's Mission/Goals.

Every Academic Program must include one goal on Program Productivity data for the South Carolina Commission on Higher Education. Information pertaining to this goal was sent by the Director of Institutional Effectiveness.

Students will demonstrate an understanding of the scientific basis (chemistry, biology, geology, basic environmental sciences) for environmental challenges and proposed solutions.

Pillar of Success Supported

- ○ High-Demand, Market-Driven Programs
- ○ Selective, Competitive Recruitment and Enrollment of Ambitious and Talented Students
- ○ Robust Student Experience
- ◉ Graduates Who Are Gainfully Employed or Admitted to Graduate School
- ○ Advancement Activities Leveraged to Further the University's Mission
- ○ Engaged and Supportive Alumni
- ○ Financially Stable and Operationally Efficient
- ○ Facilities Positioned for Growth and Efficient Utilization
- ○ Employer of Choice

○ Highly-Valued Community Partner

Choose the Pillar of Success that your goal best aligns with.

Outcomes

Outcome 1

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores on specific questions related to content knowledge on the presentation, poster or written assignment rubric in ES 301, 302, 310, 407, 490, GEOL 405 or PSCI 499.

Timeframe for this Outcome

Academic year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean of all student scores are at or above 2.0

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean of all student scores are greater than 1.7 and less than 2.0

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean of all student scores are less than or equal to 1.7

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

Rubrics for posters, presentations and written assignments in ES 301, 302, 310, 407, 490, GEOL 405 or PSCI 499.

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

At the end of the semesters in which each of these courses are taught.

Data Collected for this Timeframe (Results)

Score (Met=3, Partially Met=2, Not Met=1)

The data collected were the presentation rubrics for the final presentations in ES 301(n=12), ES 302 (n=10), ES 390 (n=8), and ES 490 (n=4).	3

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Comments/Narrative

The mean scores across all students and the four courses assessed on the item on the rubric related to content knowledge was 2.65. This goal was met. No improvements are indicated necessary. The instructor of the course has students hand in several deliverables for evaluation prior to delivery of the final written and verbal reports. These include, at a minimum, an approved topic, outline for the project, draft report, final report, and presentation based on the final report. Detailed written comments are provided by the instructor as guidance for improvement. This approach has been shown to be effective and will be continued in all upper level ES courses indicated.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 2

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention,

employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores on specific questions related to chemistry content knowledge on a locally designed environmental science exit exam.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores is greater than 50% on specific questions related to chemistry.

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores is greater than 35% and less than 50% on specific questions related to chemistry.

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores is equal to or less than 35% on specific questions related to chemistry.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

A locally designed environmental science exit exam.

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Every spring semester, offered in conjunction with PSCI 499 (Senior Seminar in Physical Science).

Data Collected for this Timeframe (Results)

Four exams were completed by graduating students (n=4) of the Environmental Science this time period. The mean score was 54.6%

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

3

Comments/Narrative

This objective was met with one of the highest mean scores obtained since this student outcome/assessment instrument has been in use. Because the chemistry related content of chemistry courses and ES curriculum has changed from time to time, a process is in place to review the questions on the exam to ensure that they reflect the major concepts taught in the four (4) to six (6) chemistry courses Environmental Science program students complete, as well as the chemistry related content in ES courses. Going forward, new students will have to complete Environmental Chemistry (CHEM 420) as a core course, among a total of five chemistry courses (inclusive of CHEM 420) rather than having it be completed by some students as one option of several ES related electives. This is anticipated to improve the mean performance on this learning objective even further.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 3

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores on specific questions related to biology content knowledge on a locally designed exit exam.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores is greater than 50% on specific questions related to biology.

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores is greater than 35% and less than 50% on specific questions related to biology.

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores is equal to or less than 35% on specific questions related to biology.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

A locally designed environmental science exit exam.

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Every spring semester, offered in conjunction with PSCI 499 (Senior Seminar in Physical Science).

Data Collected for this Timeframe (Results)

Four exams were completed by graduating students (n=4) of the Environmental Science this time period. The mean score was 67.0%.

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

3

Comments/Narrative

This objective was met with one of the highest mean scores obtained since this student outcome/assessment instrument has been in use. Because the biology related content of biology courses and ES curriculum has changed from time to time, a process is in place to review the questions on the exam to ensure that they reflect the major concepts taught in the three (3) to five (5) biology courses Environmental Science program students complete, as well as the biology related content in ES courses.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 4

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores on specific questions related to geology content knowledge on a locally designed exit exam.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores is greater than 50% on specific questions related to geology.

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores is greater than 50% on specific questions related to geology.

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores is equal to or less than 35% on specific questions related to geology.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

A locally designed environmental science exit exam

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Every spring semester, offered in conjunction with PSCI 499 (Senior Seminar in Physical Science)

Data Collected for this Timeframe (Results)

Four exams were completed by graduating students (n=4) of the Environmental Science this time period. The mean score was 45.7%.

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

2

Comments/Narrative

This specific learning outcome was partially met for this assessment period. The mean is improved over those of recent record (last three years) according to this measure, but is still typical. It is usual for this category to partially meet the objective. A detailed review of the questions missed by three or all four students for this assessment period did identify potential areas of improvement. Four (4) of the missed questions were for material covered only in a single course, Hydrogeology (GEOL 405). This course is easily the most challenging course in the ES curriculum, by virtue of its highly quantitative nature. The course is offered every other year, so the students who took the exit exam this period took GEOL 405 in the previous year. There does seem to be a pattern, looking back over previous years of data, for scores in geology to be lower during the odd numbered years (when GEOL 405 and ES 310 would have been offered more than a year prior to the exam) versus even numbered years (the same year the courses were completed). So proximity to learning may be a factor, especially for material that is not reinforced in any other courses. But that still does not get around the observation that this category met the goal only a few times in the past, with partially met being typical.

Other questions missed by all or three students were related to topics of climate change (2), structural geology (1), hydrology (but concepts reinforced in more than one course) (2) and limnology (1). All of these questions relate to material that has been reinforced in more than one course.

The sole question missed for limnology referred to stratification of lakes, a concept that is reinforced in detail in both ES 301 and BIOL 415. The question is worded in a way that the student would have to think through several alternatives for mixus, so is a higher order question than mere fact memorization. An improvement that could be made here is to actually have an assignment related to lake mixing that allows students to consider several factors that may lead to or prevent mixing, although, in ES 301, a detailed example directly relevant to the question is reviewed at length as a case study.

Only one question related to structural geology was missed by multiple students this period. This is a significant improvement on this particular topic. In the past, structural geology was reviewed briefly in GEOL 111, and some details not directly relevant to the topic in ES 310 were not covered. More detailed and consistent treatment of structural geology in GEOL 111 has helped.

Climate change is covered in varying details in GEOL 111, PSCI 112, ES 302 and ES 390 (a course on climate change that is not taken by all students).One of the questions missed by all four students referred to the fundamental concept of albedo, which was clearly covered in multiple courses. The other, missed by three, dealt with the causes of increase in sea level resulting from climate change. This very idea is specifically reviewed in three courses (ES 390, ES 302 and GEOL 111). It is difficult to see how these could be improved upon because these topics were specifically covered and in the same detail as the questions in the exit exam.

The exam will be reviewed against the content of the courses which are covered. Appropriate changes will be made to the exam.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 5

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores on specific questions related to general environmental science content knowledge on a locally designed exit exam.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores is greater than 50% on specific questions related to general environmental science.

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores is greater than 35% and equal to or less that 50% on specific questions related to general environmental science.

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores is equal to or less than 35% on specific questions related to general environmental science.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

A locally designed environmental science exit exam

Frequency of Assessment

Every spring semester, offered in conjunction with PSCI 499 (Senior Seminar in Physical Science)

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Data Collected for this Timeframe (Results)

Four exams were completed by graduating students (n=4) of the Environmental Science this time period. The mean score was 67.1%.

Score (Met=3, Partially Met=2, Not Met=1)

3

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Comments/Narrative

This objective was met with the highest mean score obtained since 2012 or longer. (Earlier records do exist, but the exam has been changed significantly over the years. Even so, this current number is the highest within the available records.) This result does not indicate a need for improvement going forward, but the material covered under this category will continue to be emphasized, as it has been, in multiple courses.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Goal Summary

Goal Summary/Comments

Other than in the specific discipline of geology, one out of five learning outcomes for this goal, this goal was met for the current assessment period. In the discipline of geology, the goal was partially met.

Analyze your results and show you are seeking improvement. If this is a goal you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Changes Made/Proposed Related to Goal

Reinforcement of topics missed in geology and hydrogeology will be made in upcoming installments of the relevant courses. The hydrogeology course is being modified to reflect student and employer interest in the areas of groundwater quality and remediation, as opposed to an abundance of emphasis on aquifer mechanics The amount and detail covered in the aquifer mechanics portion of the course will be reduced to an amount appropriate to the field, to allow expansion of the groundwater quality and remediation material. this will also necessitate an editing of the appropriate sections of the exit exam.

The biology and chemistry portions of the exam did meet the goal. Review of the exam in those disciplines with instructors of the relevant courses is an ongoing process, to make sure that any changes in the content or pedagogy of those courses are captured in the exit exam.

Describe changes that will be made in response to assessment results. Essential to "close the loop".

Upload Rubrics/Other Files

ES Rubric (Project Written Report) (2014).docx

Rubric (ES) - Presentation.doc

Please upload any rubrics or other documents used for this goal.

Goal 2

Program Goals are broad and overarching statements about the skills, knowledge, and dispositions students are expected to gain by the end of their course of study (big picture). They support the Institution's Mission/Goals.

Every Academic Program must include one goal on Program Productivity data for the South Carolina Commission on Higher Education. Information pertaining to this goal was sent by the Director of Institutional Effectiveness.

Students will demonstrate the ability to use the scientific method and associated critical thinking skills to formulate questions, design experiments and interpret and evaluate data to answer them.

Pillar of Success Supported

○ High-Demand, Market-Driven Programs

○ Selective, Competitive Recruitment and Enrollment of Ambitious and Talented Students

○ Robust Student Experience

◉ Graduates Who Are Gainfully Employed or Admitted to Graduate School

○ Advancement Activities Leveraged to Further the University's Mission

○ Engaged and Supportive Alumni

○ Financially Stable and Operationally Efficient

○ Facilities Positioned for Growth and Efficient Utilization

○ Employer of Choice

○ Highly-Valued Community Partner

Choose the Pillar of Success that your goal best aligns with.

Outcomes

Outcome 1

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

Mean scores of the portions of a written research report, presentation or poster rubric that ask reviewers to assess critical thinking skills and use of the scientific method in semester assignments in ES 310/302, 310, 407, 490, GEOL 405 or PSCI 499.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean of all student scores are at or above 2.0

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean of all student scores are above 1.7 and less than 2.0.

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean of all student scores are less than 1.7

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

Mean score of the portions of a written research report and rubric that ask reviewers to assess critical thinking skills and use of the scientific method in semester assignments in ES 301, ES 302 and ES 310. (N=24)

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

ES 301, ES 302 and ES 310 are offered every other year. All three were offered in Academic Year 2018-2019

Data Collected for this Timeframe (Results)

Mean score of the portions of a written research report and rubric that ask reviewers to assess critical thinking skills and use of the scientific method in semester assignments in ES 301, ES 302 and ES 310. (N=24). The mean score was 2.7.

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

3

Comments/Narrative

The goal was met, according to this student learning outcome. The rubric was completed for draft reports in ES 301 and ES 302, but was not completed for the final report. Rather, detailed comments were provided on the draft report, and the final report was checked against those comments for improvement. So, the improvement was entered as an increase in the percent score for the entire research papers. So, a modified assessment scale was estimated (conservatively) for this student outcome for the purpose of program assessment, in which final report scores were assessed as meeting this goal for totals exceeding 80%. They were partially met at 70% to 80%, and they were not met at scores below 60%. All 24 except 4 individual scores were met. The other four scores were not met. The project in ES 301 was a team project where one of the teams did not meet the objective, even with detailed guidance from the instructor. Work products were often late or partially complete. The challenge for that team seemed to be in the areas or coordination of the work and in time management.

The strong performance by the rest of the teams/students suggest that improvement is not indicated for the course as a whole. However, in the interest of continuous improvement, the instructor will consider how to address team project time and work management. This has been a recurring challenge. In other classes; it was found that teams of two work much better than teams of 3 or more in terms of delivering acceptable work products. However, part of the purpose of the team projects in the ES major, especially in ES 301/ES 302, is to teach students how to effectively work in teams, because that is the nature of most professional work in environmental science.

In future, the entire rubric will be completed for both draft and final reports. The courses to be assessed in academic year 2019-2020 will be ES 310 and GEOL 405.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 2

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores on specific questions requiring students to demonstrate critical thinking and/or use the scientific method on a locally written environmental science exit exam

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores is greater than 50% on specific questions related to this indicator of success.

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores is greater than 35% and equal to or less than 50% on specific questions related to this indicator of success.

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores is equal to or less than 35% on specific questions related to this indicator of success.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

A locally written environmental science exit exam.

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

This assessment instrument is administered every spring term in conjunction with PSCI 499.

Data Collected for this Timeframe (Results)

Score (Met=3, Partially Met=2, Not Met=1)

3

Four exams were completed by graduating students (n=4) of the Environmental Science this time period. The mean score was 77.1%.

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Comments/Narrative

This goal was met according to this student learning outcome.. The requirement for improvement according to this result is not indicated.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 3

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores of the portion of the supervisor completed rubric for internships (ES 490) related to critical thinking and/or the use of the scientific method

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores is greater than 3.6 on the relevant section of the supervisor completed rubric for internships in environmental science (A. Problem Solving/Inquiry) .

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores is greater than 3.0 and less than 3.6 on the relevant section of the supervisor completed rubric for internships in environmental science (A. Problem Solving/Inquiry) .

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores is less than 3.0 on the relevant section of the supervisor completed rubric for internships in environmental science (A. Problem Solving/Inquiry) .

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

A supervisor completed rubric for environmental science internships (ES 490). N=3. This is the rubric used in the Lander University EYE Program

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Completed at the end of each environmental science internship, which is offered on demand in the program.

Data Collected for this Timeframe (Results)

Three supervisor completed rubrics were returned this assessment period. (This is the first time that this learning outcome was used in Environmental Science Program assessment.) The mean score was 4.3.

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

3

Comments/Narrative

This is the first time that this learning outcome has been used in Environmental Science program assessment of this goal. It is common for the total number of students completing the internship in any given assessment period to be quite small, which is the main reason for excluding these results until now. However, the strength of this particular learning outcome is that it provides feedback from objective observers outside the Environmental Science program and Lander University. These are also the entities that may employ Lander students after graduation. It is planned to continue using this learning outcome in the future, considering that numbers will be low from year to year. Students in the program must complete either an internship or a senior research project prior to graduation. Most students opt for the internship. The strong result in this assessment is typical of performance of Lander Environmental Science students in internships, which has made it easy to place students with the same employers year after year.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Goal Summary

Goal Summary/Comments

Three different learning outcomes were used to assess this goal, rubrics associated with semester class projects in three courses (ES 301, ES 302 and ES 310),. questions on an environmental science exit exam given to graduating seniors, and supervisor-completed rubrics for students completing internships in environmental science. All three learning outcomes met the goal with respect to critical thinking and/or the use of the scientific method No changes are indicated by those results.

This assessment is the first time that the supervisor completed rubric was used for assessing this goal. It is planned to keep this student learning outcome going forward because it provides feedback from supervisors outside of the environmental science program and Lander University, even though the number of students competing internships each assessment period is small and variable.. .

Analyze your results and show you are seeking improvement. If this is a goal you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Changes Made/Proposed Related to Goal

A new student learning outcome was added to this assessment, a supervisor completed rubric for students completing internships in environmental science. It is planned to continue with this particular learning outcome going forward.

Students have met this goal. The program strengths include a 1 year project in ES 301 and ES 302 that requires teams of students to address a 'real world' environmental challenge, which includes field , lab and/or data mining components. This will continue and be developed to address challenges that have come up each time, such as how team and time management can be improved for the project teams. Every upper level course in ES requires a research project with multiple deliverables, and critical thinking is front and center of each of those research projects. All research projects of this sort require a paper and a presentation. The paper is first turned in as a draft, allowing students to make improvements, including the collection of additional data/information, if necessary. All projects go through an initial problem definition stage, which requires high levels of critical thinking and framing consistent with the scientific method. These strengths will continue.

Describe changes that will be made in response to assessment results. Essential to "close the loop".

Upload Rubrics/Other Files
Rubric (ES) - Internship Supervisor Rubric.doc

Please upload any rubrics or other documents used for this goal.

Goal 3

Program Goals are broad and overarching statements about the skills, knowledge, and dispositions students are expected to gain by the end of their course of study (big picture). They support the Institution's Mission/Goals.

Every Academic Program must include one goal on Program Productivity data for the South Carolina Commission on Higher Education. Information pertaining to this goal was sent by the Director of Institutional Effectiveness.

Students will demonstrate the development of writing and presentation skills appropriate for students and practitioners in the discipline of environmental science.

Pillar of Success Supported

○ High-Demand, Market-Driven Programs

○ Selective, Competitive Recruitment and Enrollment of Ambitious and Talented Students

○ Robust Student Experience

◉ Graduates Who Are Gainfully Employed or Admitted to Graduate School

○ Advancement Activities Leveraged to Further the University's Mission

○ Engaged and Supportive Alumni

○ Financially Stable and Operationally Efficient

○ Facilities Positioned for Growth and Efficient Utilization

○ Employer of Choice

○ Highly-Valued Community Partner

Choose the Pillar of Success that your goal best aligns with.

Outcomes

Outcome 1

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

Mean scores on questions related to the demonstration of writing or presentation skills on assignment rubrics from ES 301/302, ES 310, ES 407, or GEOL 405.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean or all students scores is at or above 2.0

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean or all students scores is above 1.7 and below 2.0

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean or all students scores is less than or equal to 1.7.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

Presentation rubrics in ES 301 and ES 302 plus written report rubrics in ES 310, ES 301 and ES 302 were used.

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Each of these courses is offered every other year. Assessments are completed in at least two courses each academic year, with specific courses alternating.

Data Collected for this Timeframe (Results)

Presentation rubrics in ES 301 and ES 302 (N= 22, Mean = 2.59) plus written report rubrics in ES 310, ES 301 and ES 302 (N=27, Mean = 2.65) were used. The total number of scores was 49 and the mean was 2.62.

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

3

Comments/Narrative

The goal was met according to this learning outcome. Presentation skills had a mean score of 2.59 while written communications skills had a mean of 2.65, both similar in number. It is expected that the written communication skills would be a little higher because multiple deliverables were required for the written report, complete with detailed, instructor written feedback for improvements. Presentations were not evaluated in draft or preliminary form, so there was no real opportunity for improvement following feedback.

These scores suggest that course embedded communications assignments, written and presentation, are working quite well in the environmental science program. No additional improvement is indicated by the results of this learning outcome.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 2

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

Mean scores on questions related to the demonstration of presentation skills on a presentation rubric from ES 490 (Internship) or ES 407 (Research).

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean or all students scores is at or above 2.0

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean or all students scores is above 1.7 and below 2.0

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean or all students scores is less than or equal to 1.7.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used **Frequency of Assessment**

Mean scores on questions related to the demonstration of presentation skills on a presentation rubric from ES 490 (Internship)	Both ES 490 and ES 407 are available on demand for juniors or seniors. Seniors most frequently pursue ES 490 (internship).

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Data Collected for this Timeframe (Results)	**Score (Met=3, Partially Met=2, Not Met=1)**
Presentation rubric in ES 490 (N=4, Mean = 2.5).	3

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Comments/Narrative

The goal was met according to this learning outcome. All four students who completed internships and presentations met the goal. No improvement is indicated based on this learning outcome. This learning outcome was separated from that of class embedded assignments because of differences in the nature of the projects and because individuals outside the course, program and even the university are invited to assess presentation performance.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 3

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge,

skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

The mean scores of the portion of the supervisor completed rubric for internships (ES 490) related to written or verbal communication.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores is greater than 3.6 on the relevant section of the supervisor completed rubric for internships in environmental science (B. Communications) .

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores is greater than 3.0 and less than 3.6 on the relevant section of the supervisor completed rubric for internships in environmental science (B. Communications) .

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores is less than 3.0 on the relevant section of the supervisor completed rubric for internships in environmental science (B.Communications)

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

A supervisor completed rubric for environmental science internships (ES 490). N=3. This is the rubric used in the Lander University EYE Program

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Completed at the end of each environmental science internship, which is offered on demand in the program.

Data Collected for this Timeframe (Results)

Three supervisor completed rubrics were returned this assessment period. The mean score was 4.2. Each student, individually, scored 3.8 or higher on this learning outcome.

If this is a new outcome and no data has been

Score (Met=3, Partially Met=2, Not Met=1)

3

collected, you should explain when data will be available for entry.

Comments/Narrative

This goal was met according to this learning outcome. Each of the students met the goal, as well. Required program improvement is not indicated by these results.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Goal Summary

Goal Summary/Comments

All students over all three learning outcomes met this goal. This is not surprising given the effort and focus of program and department faculty on written and verbal communications skills in many of the classes, plus internships, research and PSCI 499 presentations. This is an area of strength to keep and develop for this program.

Analyze your results and show you are seeking improvement. If this is a goal you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Changes Made/Proposed Related to Goal

No specific changes will be made to the program based on this goal. Presentations to outside conferences, such as the Upstate Research Symposium, as well as presentations to the Academic Symposium at Lander, are encouraged at several points in the environmental science program. This will continue. Over the last assessment period, a few presentations were made in the Academic Symposium by environmental science majors in the ES 111 class. The assessment coordinator and team for environmental science assessment will consider using assessment rubrics from the Academic Symposium in the future in program assessment. The advantage of doing this is that assessments would be completed by personnel or faculty outside of the program or department, providing broader feedback.

Describe changes that will be made in response to assessment results. Essential to "close the loop".

Upload Rubrics/Other Files
Please upload any rubrics or other documents used for this goal.

Goal 4

Program Goals are broad and overarching statements about the skills, knowledge, and dispositions students are expected to gain by the end of their course of study (big picture). They support the Institution's Mission/Goals.

Every Academic Program must include one goal on Program Productivity data for the South Carolina Commission on Higher Education. Information pertaining to this goal was sent by the Director of Institutional Effectiveness.

Students will develop an ability to develop and articulate well informed and reasoned views on environmental issues, based on an understanding of legal, ethical, social, political and economic ramifications of environmental problems, policies and decisions.

Pillar of Success Supported

- ○ High-Demand, Market-Driven Programs
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- ○ Employer of Choice
- ○ Highly-Valued Community Partner

Choose the Pillar of Success that your goal best aligns with.

Outcomes

Outcome 1

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Student Learning Outcome

Enter Outcome

Mean score on portions of a locally written environmental science exit exam assessing student demonstration of developing and articulating well informed and reasoned views on legal, ethical, social and political ramifications of environmental problems, policies and decisions.

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

The mean score of all student scores for the sum of the selected questions is greater than 50%.

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

The mean score of all student scores for the sum of the selected questions is greater than 35% and equal to or less than 50%..

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

The mean score of all student scores for the sum of the selected questions is less than 35%.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

Selected questions on a locally written environmental science exit exam.

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

The exam is given each spring semester in conjunction with PSCI 499, the senior seminar for the Department of Physical Sciences, a class which includes graduating seniors in both the Environmental Science and Chemistry programs..

Data Collected for this Timeframe (Results)

Four exams were completed by graduating students (n=4) of the Environmental Science this time period. The mean score was 77.3%

Score (Met=3, Partially Met=2, Not Met=1)

3

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Comments/Narrative

Not only did the mean of the four scores meet the goal for this learning outcome (mean of 77.3% versus a requirement of 50%), but each of the four students met the goal with a range of 55% to 90% (The highest of record). No improvements are indicated based on the results of this learning outcome.

The relevant questions include essay questions in which students select a major environmental challenge and provide details, including description of the challenge, impacts of the challenge, causes of the challenge, major factors influencing and potential solutions of the challenge. Students are expected to complete the essay by considering several disciplines.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Goal Summary

Goal Summary/Comments

The goal was met by all four students, as well as by the mean of the student scores exceeding the learning outcome measure for 'met.'

Despite this, a change is proposed to both the program and the assessment. First, a second learning outcome will be added to the assessment of this Goal 4, though its first implementation is not likely until the academic year 2020-2021. This assessment would be based on a new, course embedded project, most likely in ES 302 (possibly ES 301). ES 301/ES 302 are the only courses in the Environmental Science curriculum in which such an assignment would be instructive. The goal calls for integration of content, thinking and approaches across several disciplines to address a major environmental challenge. These two courses do cover aspects of these other disciplines (economics, social science, political and legal systems) related to environmental challenges (economy, social systems, political systems).

Furthermore, beginning in fall 2019, new students in the Environmental Science program are required to take ES 111, a course in sustainability that introduces students to the evaluation of environmental challenges by separately considering the environmental, social and economic aspects of the challenges. This presents an opportunity for ES 301/ES 302 to build from this background, allowing those courses to be taught at a higher level in those disciplines. ES 111 occurs too early in the program to be used for program assessment, being a freshman level course.

ES 301 and ES 302 are offered every other year, so the next time they will be offered will be in academic year 2020-2021. At that time, issue papers, culminating in a final, individual student project in ES 302, will be required. This will be in addition to the team research projects that have worked so well in the past with the scientific method goal. A way will need to be found to do both, such that students are not overwhelmed with the amount of work required in either course. Another possibility might be the addition of a new course to the core of the curriculum to take on that challenge, which may be possible with the university-wide changes being discussed to the general education curriculum, which may create more instructional space for the programs (major).

Analyze your results and show you are seeking improvement. If this is a goal you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Changes Made/Proposed Related to Goal

A proposed change to the assessment is to add a second student outcome, to reflect a new, course embedded project in ES 301 or ES 302, which will next be offered in academic year 2020-2021..Alternatively, a new course may be added to the environmental science curriculum that will specifically address this goal, with the emphasis on interdisciplinary thinking, analysis and synthesis regarding environmental challenges. This will build upon the learning that takes place in ES 111, a new course that is required of ES students beginning with the Fall 2019 entering class. The proposal of a new course is contingent upon decisions the university makes regarding the general education program for all students, which may create more instructional space for a new course in the program.

Describe changes that will be made in response to assessment results. Essential to "close the loop".

Upload Rubrics/Other Files

Please upload any rubrics or other documents used for this goal.

Goal 5

Program Goals are broad and overarching statements about the skills, knowledge, and dispositions students are expected to gain by the end of their course of study (big picture). They support the Institution's Mission/Goals.

Every Academic Program must include one goal on Program Productivity data for the South Carolina Commission on Higher Education. Information pertaining to this goal was sent by the Director of Institutional Effectiveness.

To comply with Program Productivity standards as defined by the South Carolina Commission on Higher Education

Pillar of Success Supported

- ◉ High-Demand, Market-Driven Programs
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Choose the Pillar of Success that your goal best aligns with.

Outcomes

Outcome 1

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Operational Outcome

Enter Outcome

Major Enrollment

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

Using a five-year rolling average, the number of students enrolled in the major for Baccalaureate programs is greater than or equal to 12.5,

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

Not Applicable

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

Using a five-year rolling average, the number of students enrolled in the major for Baccalaureate programs is less than 12.5.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

Enrollment and Graduation data extracted from Banner

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Annually

Data Collected for this Timeframe (Results)

The five-year rolling mean for student enrollment was 14.0

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

3

Comments/Narrative

The goal was met according to this operational outcome. No changes are indicated. There does seem to be some progress, however. The enrollment in 2018-2019 was 20 students, while that in 2017-2018 was 11, with the previous three years below 15. This increase in enrollment numbers in the Environmental Science program seems to reflect the total increase in enrollment at Lander University.

A few minor changes to the program should add to enrollment numbers. The first is that, for the first time in spring 2019, ES 111, a freshman level course in environmental sustainability, was added to the curriculum. This course meets the general education science requirement for a non-lab science course. It attracts students from across campus. The reason this might be an effective recruitment opportunity is that most students at Lander are unaware of the major, and very few are even aware of environmental science as an educational or career opportunity, given the short shrift this discipline has been given on South Carolina's career cluster scheme that is used by guidance counselors in public schools. Further, there has been a trend of high schools discontinuing environmental science courses in South Carolina due to low enrollment. Recruiting for this vital field has always been a challenge for these reasons. ES 111 may make a difference.

The second recent change is the approval of an addition of an area of concentration in Environmental Forensics, which takes advantage of new courses offered in forensic science at Lander University. This area of concentration was approved by CHE during the summer of 2019. This should broaden the interest of students in ES.

A third factor is that the student group, Environmental Science Student Organization (ESSO) has expanded in membership over the last two years. This will put more students in touch with the program and should lead to more interest in the major.

A fourth item is, that in the last three years or so, there has been an increase in Biology students earning minors in ES, with two recently graduating with double majors in Biology and ES. This trend is expected to continue, given that it has support among faculty in Biology as well as the department and college. All of these factors, taken together, should lead to continued growth of the Environmental Science program.

Nevertheless, additional recruiting opportunities will be sought. One potential opportunity would be the celebration of the 50th anniversary of Earth Day coming up during Spring 2020.

Analyze your results and show you are seeking improvement. If this is an outcome you have used in the past, please provide a narrative that includes an analysis of historical data and current data. Include evidence of improvement or clarification of why improvement has not been accomplished.

Resources Needed to Meet/Sustain Results

Include estimate of cost.

Explanation of How Resources Will Be Used

Outcome 2

Outcomes are specific, **measurable** statements that reflect the broader goals.

Academic Programs are required to develop **Student Learning Outcomes**, which describe knowledge, skills, and values that students are expected to gain as a result of their educational experiences.

Academic Programs may also develop **Operational Outcomes**, which describe the level of performance of an operational aspect of a program or office (ex. graduation rates, retention, employment data).

Most goals have at least two outcomes measured.

What type of Outcome would you like to add?

Operational Outcome

Enter Outcome

Completions (Degrees Awarded

Timeframe for this Outcome

Academic Year 2018-2019

Ex. Academic Year 2017-2018

Performance Target for "Met"

Using a five-year rolling average, the number of degrees awarded for Baccalaureate programs is greater than or equal to 8.

The anticipated level of achievement for this Outcome to be considered "Met".

Performance Target for "Partially Met"

Not Applicable

The anticipated level of achievement for this Outcome to be considered "Partially Met".

Performance Target for "Not Met"

Using a five-year rolling average, the number of degrees awarded for Baccalaureate programs is less than 8.

The anticipated level of achievement for this Outcome to be considered "Not Met".

Assessment Measure Used

Enrollment and Graduation data extracted from Banner

Tools that allow us to measure or demonstrate the extent to which outcomes have been achieved (ex. Capstone assignment).

Frequency of Assessment

Annually

Data Collected for this Timeframe (Results)

The five-year rolling average for degrees earned was 3.4 for this assessment period.

If this is a new outcome and no data has been collected, you should explain when data will be available for entry.

Score (Met=3, Partially Met=2, Not Met=1)

1

Comments/Narrative

This goal was not met for this operational outcome, at 3.4 versus a requirement of 8 degrees awarded, based on a five-year rolling average. There are two possible explanations for this result, 1) low total enrollment, although they met the requirement, are still not sufficiently high to lead to an expectation that the program would graduate the minimum of 8 students, and b) graduation rates for the program are low. In analyzing the data, the first alternative seems most likely to be responsible for the program not meeting this goal. For example, a program that just meets the 8 degrees awarded requirement, in a four year program, would have no fewer than 32 students, with an award rate of 100% of incoming students. The Environmental Science program had a total of 14 students in the five-yeal rolling average. Assuming equal numbers in all four grades and a 100% degree award rate, we would expect a five-year rolling average of 3.5 degrees awarded. This is almost exactly the result obtained The takeaway from that is that the Environmental Science Program is doing a very good job graduating students in the program, but that the total numbers are not high enough to guarantee success against this requirement for 8 degrees awarded.

Conversely, and only by way of illustration,Program X at Lander University has about 176 total enrollment over a five-year rolling average, while graduating 16.4 students per year. The degree awarding rate of that program (about 36%) is less than half that of the Environmental Science program (about 97%), as a proportion of students, while exceeding both requirements. Among Lander academic programs, the Environmental Science program performs fairly well from the perspective of degrees awarded, ranking second highest according to this simple analysis. This result is rather surprising, because there is a general view across the university in general that the science programs are the most rigorous, and therefore have lower degree completion rates. Two of the three science programs at Lander are above average in degree completion as a proportion of student enrollment.

The implication of this for Environmental Science is that the program is actually doing quite well to help students complete their degrees. The challenge, rather, is that total student enrollment numbers should target the upper twenties to low thirties to reliably meet this goal.. In other words, this assessment leads one to believe that this is more a recruiting challenge than an academic performance or retention challenge.

We anticipate total student numbers in the program, and consequently total degrees awarded, to increase over the next few years based on improved total student enrollment numbers at Lander University and other factors and recent changes to the Environmental science program.

A few minor changes to the program already implemented should add to enrollment numbers. The first is that, for the first time in spring 2019, ES 111, a freshman level course in environmental sustainability, was added to the curriculum. This course meets the general education science requirement for a non-lab science course. It attracts students from across campus. The reason this might be an effective recruitment opportunity is that most students at Lander are unaware of the major, and very few are even aware of environmental science as an educational or career opportunity, given the short shrift this discipline has on South Carolina's career cluster scheme that is used by guidance counselors. Further, there has been a trend of schools discontinuing environmental science courses in high school in South Carolina due to low enrollment. Recruiting for this vital field has always been a challenge for these reasons. ES 111 may make a difference.