Course Student Learning Outcomes Assessment

ASTR 110 Introduction to Stars and Galaxies

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General Information (Course Student Learning Outcomes Assessment)

Standing Requirements

Course Description

Surveys the development of astronomy current research and observations of stars galaxies and large-scaled structures in the universe. Explores light and gravity to understand the properties and evolution of stars neutron stars black holes galaxies and the universe structures and changes.

Course Student Learning Outcomes

ASTR 110 Introduction to Stars and Galaxies Outcome Set

Outcome

Outcome	Mapping
Outcome 1 Apply scientific reasoning to future astronomical discoveries to understand their validity as well as to everyday situations.	**Institutional Student Learning Outcomes:** Act 3, Communicate 1, Learn 3, Think 1, Think 3
Outcome 2 Discuss how light is used by astronomers to learn about the universe.	**Institutional Student Learning Outcomes:** Act 3, Communicate 1
Outcome 3 Discuss how gravity is related to the formation, interaction, and evolution of the solar system, stars, galaxies, and the universe.	**Institutional Student Learning Outcomes:** Act 3, Communicate 1

2014-2015 Assessment Cycle

Measurements

Outcomes and Measures

ASTR 110 Introduction to Stars and Galaxies Outcome Set

Outcome

Outcome 1
Apply scientific reasoning to future astronomical discoveries to understand their validity as well as to everyday situations.

Measure: Embedded Final Exam Questions - SLO 1
Course level; Direct - Exam

Description of Measurement Tool: The assessment tool consisted of a series of multiple-choice questions embedded into the cumulative final exams of the course. The questions selected were based on the ability to interpret data to determine a conclusion.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam collectively, correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Fall 2014, analyzed and reported Spring 2015
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2017, 2020, 2023, 2026, 2029. 2032
Data analyzed: Winter break 2018, 2021, 2024, 2027, 2030, 3033
Results reported: Spring semester 2018, 2021, 2024, 2027, 2030, 2033

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Fall 2014 assessment was coordinated, analyzed, and reported by Professor Martino.

Outcome 2
Discuss how light is used by astronomers to learn about the universe.

No measures specified

Outcome 3
Discuss how gravity is related to the formation, interaction, and evolution of the solar system, stars, galaxies, and the universe.

No measures specified

Findings

Finding per Measure

ASTR 110 Introduction to Stars and Galaxies Outcome Set

Outcome

Outcome 1
Apply scientific reasoning to future astronomical discoveries to understand

Measure: Embedded Final Exam Questions - SLO 1
Course level; Direct - Exam

their validity as well as to everyday situations.

Description of Measurement Tool: The assessment tool consisted of a series of multiple-choice questions embedded into the cumulative final exams of the course. The questions selected were based on the ability to interpret data to determine a conclusion.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam collectively, correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Fall 2014, analyzed and reported Spring 2015
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2017, 2020, 2023, 2026, 2029. 2032
Data analyzed: Winter break 2018, 2021, 2024, 2027, 2030, 3033
Results reported: Spring semester 2018, 2021, 2024, 2027, 2030, 2033

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Fall 2014 assessment was coordinated, analyzed, and reported by Professor Martino.

Findings for Embedded Final Exam Questions - SLO 1

Summary of Findings: The analysis consisted of 5 sections of Astr 110, giving a total of 174 students that participated in the assessment. 3 of the sections had a survey of 34 questions, 2 sections consisted of 5 questions.

When combining the sections together, overall 72.8% of the students successfully met the SLO.

Results: Criteria for Success Achievement Status: Exceeded

Analysis of Findings: 3 of the 5 sections had a survey of 34 questions. There were 96 students that participated in this assessment, 63.5% of them collectively answered the survey questions correctly. There were only 3 questions where more than half the students answered incorrectly.

2 of the sections had a survey of 5 questions. There were 78 students that participated in that assessment, 82.1% of them correctly answered the survey questions.

When combining the sections together, overall 72.8% successfully met the SLO.

There is a 18.6% discrepancy of the two subset of students surveyed. The subset with more questions had a lower success rate than that of the fewer question survey. This combined with the number of students taking the different amount of questions in the survey is something for the faculty to explore.

Recommendations: Faculty are encourage to continue to seek ways to improve instruction and assessment, no major correction is recommended. The faculty are encouraged to continue instruction with a student-centered format that has historically lead to successful meetings of the SLO. The faculty are encouraged to review and exchange the questions related to the SLO to ensure they are the most appropriate questions for assessing the SLO. Further, to consider if there is an appropriate number of questions that should be used for the assessment tool.

Outcome 2

Discuss how light is used by astronomers to learn about the universe.

No measures specified

Outcome 3

Discuss how gravity is related to the formation, interaction, and evolution of the solar system, stars, galaxies, and the universe.

No measures specified

Overall Recommendations

No text specified

Plans of Action

Status Reports

2013-2014 Assessment Cycle

Measurements

Outcomes and Measures

ASTR 110 Introduction to Stars and Galaxies Outcome Set

Outcome

Outcome 1

Apply scientific reasoning to future astronomical discoveries to understand their validity as well as to everyday situations.

Measure: Embedded Final Exam Questions - SLO 1
Course level; Direct - Exam

Description of Measurement Tool: The assessment tool consisted of 12 multiple-choice questions embedded into the cumulative final exams of the course.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Spring 2013, analyzed and reported Fall 2013
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2014, 2017, 2020, 2023, 2026, 2029
Data analyzed: Winter break 2015, 2018, 2021, 2024, 2027, 2030
Results reported: Spring semester 2015, 2018, 2021, 2024, 2027, 2030

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Spring 2013 assessment was coordinated, analyzed, and reported by Professor Martino.

Outcome 2

Discuss how light is used by astronomers to learn about the universe.

Measure: Embedded Final Exam Questions - SLO 2
Course level; Direct - Exam

Description of Measurement Tool: The assessment tool consisted of 18 multiple-choice questions embedded into the cumulative final exams of the course.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Spring 2013, analyzed and reported Fall 2013
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2015, 2018, 2021, 2024, 2027, 2030
Data analyzed: Winter break 2016, 2019, 2022, 2025, 2028, 2031
Results reported: Spring semester 2016, 2019, 2022, 2025, 2028, 2031

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Spring 2013 assessment was coordinated, analyzed, and reported by Professor Martino.

Outcome 3

Discuss how gravity is related to the formation, interaction, and evolution of the solar system, stars, galaxies, and the universe.

Measure: Embedded Final Exam Questions - SLO 3
Course level; Direct - Exam

Description of Measurement Tool: The assessment tool consisted of 13 multiple-choice questions embedded into the cumulative final exams of the course.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Spring 2013, analyzed and reported Fall 2013
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2016, 2019, 2022, 2025, 2028, 2031
Data analyzed: Winter break 2017, 2020, 2023, 2026, 2029, 2032
Results reported: Spring semester 2017, 2020, 2023, 2026, 2029, 2032

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Spring 2013 assessment was coordinated, analyzed, and reported by Professor Martino.

Findings

Finding per Measure

ASTR 110 Introduction to Stars and Galaxies Outcome Set

Outcome

Outcome 1
Apply scientific reasoning to future astronomical discoveries to understand their validity as well as to everyday situations.

Measure: Embedded Final Exam Questions - SLO 1
Course level; Direct - Exam

Description of Measurement Tool: The assessment tool consisted of 12 multiple-choice questions embedded into the cumulative final exams of the course.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Spring 2013, analyzed and reported Fall 2013
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2014, 2017, 2020, 2023, 2026, 2029
Data analyzed: Winter break 2015, 2018, 2021, 2024, 2027, 2030
Results reported: Spring semester 2015, 2018, 2021, 2024, 2027, 2030

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Spring 2013 assessment was coordinated, analyzed, and reported by Professor Martino.

Findings for Embedded Final Exam Questions - SLO 1

Summary of Findings: A total of 122 students from three different sections of the course were surveyed.
Of these students surveyed for the final exam assessment, 68% of the students correctly answered the questions regarding this SLO.

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: Of the 12 questions used in the survey there were two questions that more than 50% of the students missed. If these two questions are omitted the success rate goes up to 69%.

With over 2/3 of our students successfully working through the questions we are confident that our students are able to interpret presented information and draw reasonable conclusions as to the validity of the proclamation.

Recommendations: Faculty are encourage to continue to seek ways to improve instruction and assessment, no major correction recommended. The faculty are encouraged to continue instruction with a student-centered format, similar to those techniques was used in the facilitation of the sections surveyed. The faculty are encouraged to review the questions related to the SLO to ensure they are the most appropriate questions for assessing the SLO.

Outcome 2

Discuss how light is used by astronomers to learn about the universe.

Measure: Embedded Final Exam Questions - SLO 2
Course level; Direct - Exam

Description of Measurement Tool: The assessment tool consisted of 18 multiple-choice questions embedded into the cumulative final exams of the course.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Spring 2013, analyzed and reported Fall 2013
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2015, 2018, 2021, 2024, 2027, 2030
Data analyzed: Winter break 2016, 2019, 2022, 2025, 2028, 2031
Results reported: Spring semester 2016, 2019, 2022, 2025, 2028, 2031

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Spring 2013 assessment was coordinated, analyzed, and reported by Professor Martino.

Findings for Embedded Final Exam Questions - SLO 2

Summary of Findings: A total of 122 students from three different sections of the course were surveyed. Of the 122 students surveyed for the final exam assessment, 65% of the students correctly answered the questions regarding this SLO.

With 65% of the students meeting the SLO is considered to be successfully met.

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: Of the 18 questions used in the survey there were five questions that more than 50% of the students missed. If these questions are omitted the success rate goes up to 73%.

With 65% of our students successfully working through the questions we are confident that our students can understand and discuss how and in what ways light is used to determine properties of astronomical objects.

Recommendations: Faculty are encourage to continue to seek ways to improve instruction and assessment, no major correction recommended. The faculty are encouraged to continue instruction with a student-centered format, similar to those techniques was used in the facilitation of the sections surveyed. The faculty are encouraged to review the questions related to the SLO to ensure they are the most appropriate questions for assessing the SLO.

Outcome 3

Discuss how gravity is related to the formation, interaction, and evolution of the solar system, stars, galaxies, and the universe.

Measure: Embedded Final Exam Questions - SLO 3
Course level; Direct - Exam

Description of Measurement Tool: The assessment tool consisted of 13 multiple-choice questions embedded into the cumulative final exams of the course.

Criteria for Success: Individual & Collective Student Criterion: The criteria for success is if collectively 60% of the students taking the final exam correctly answer the embedded questions chosen for assessment.

Cycle of Assessment: Data gathered Spring 2013, analyzed and reported Fall 2013
New adopted Cycle for ongoing assessment:
Data gathered: Fall semester 2016, 2019, 2022, 2025, 2028, 2031
Data analyzed: Winter break 2017, 2020, 2023, 2026, 2029, 2032
Results reported: Spring semester 2017, 2020, 2023, 2026, 2029, 2032

Who is Responsible for Assessment Activity?: The instructor of record for the sections was responsible for administering the assessment and collection of data. Spring 2013 assessment was coordinated, analyzed, and reported by Professor Martino.

Findings for Embedded Final Exam Questions - SLO 3

Summary of Findings: A total of 122 students from three different sections of the course were surveyed. Of the 122 students surveyed for the final exam assessment, 62% of the students correctly answered the questions regarding this SLO. With 62% of the students meeting the SLO is considered to be successfully met.

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: Of the 13 questions used in the survey there were two questions that more than 50% of the students missed. If these questions are omitted the success rate goes up to 69%.

With 62% of our students successfully working through the questions we are confident that our students can understand and discuss the vital role gravity plays in the formation of stars, the solar system and extra-galactic interactions throughout the universe.

Recommendations: Faculty are encourage to continue to seek ways to improve instruction and assessment, no major correction recommended. The faculty are encouraged to continue instruction with a student-centered format, similar to those techniques was used in the facilitation of the sections surveyed. The faculty are encouraged to review the questions related to the SLO to ensure they are the most appropriate questions for assessing the SLO.

Overall Recommendations

No text specified

Plans of Action

Status Reports

2012-2013 Assessment Cycle

- **Measurements**
- **Findings**
- **Plans of Action**
- **Status Reports**