

NATURAL SCIENCE CART – 2018-2019 Assessment Report

Learning Outcome #1: Understand the distinction between science and other fields of knowledge and human experience.

Assessment Methods	Benchmark	Results	Action Taken
Assessment 1 (direct): CORE 270: Limits of Science Assessment	At least 75% of students earn a score of 2 or better on a 3-point assessment rubric	Target met. 77% of students earned a 2 or higher.	No action needed.
Assessment 2 (indirect): CORE 270: Natural Science Questionnaire on Moodle (Questions #4-6)	At least 75% of students correctly answer each post-test question	Mixed results. Moodle question topics: Nat Sci & Soc Sci Q#4 59% Nat Sci & Religion Q#5 33% Nat Sci & Correct Q#6 76%	Moodle questionnaire will be discontinued in the Core assessment starting Fall 2019.

Discussion Section

Results of both assessment methods are very similar to those in previous years.

For the direct assessment, instructors select an assignment of their choice (e.g. quiz, exam question, homework) to assess this learning outcome. Students continued to meet the benchmark on this assessment method.

Student performance on Moodle survey questions #4 and #5 continue to fall below the benchmark. Given the results of the direct assessment, it is possible that the issue of lower scores on the Moodle questionnaire lies with the assessment tool itself. Not every student completes the Moodle post-test and there is no way to ensure the students are taking the survey seriously. It is also possible that the topics themselves (e.g. the distinction between questions of science and religion) are better posed as open-ended discussion questions (like the direct assessment assignment) rather than the multiple-choice questions on the Moodle survey. We will no longer use the survey in the assessment of the natural science Core courses beginning in Fall 2019.

NATURAL SCIENCE CART – 2018-2019 Assessment Report

Learning Outcome #3: Distinguish legitimate scientific methodologies from those of non-science

Assessment Methods	Benchmark	Results	Action Taken
Assessment 1 (direct): CORE 270: Pseudoscience Project	At least 75% of students score a “2” or higher in each category on a 3-point assessment rubric.	Benchmark Met. Rubric category scores: Summarize claim 84.0% Identify principles 86.3% Analyze evidence 74.7% Identify alternate 76.8% Draw conclusions 76.1% Eval. references 82.6% Writing quality 89.0%	Course structure will be modified to provide more emphasis on contemporary issues, like vaccine denial and global warming.
CORE 270: Natural Science Questionnaire on Moodle (Questions #17-20)	At least 75% of students correctly answer each post-test question	Benchmark primarily met. Moodle question topics: Pseudosci. Q#17 90% Consequences Q#18 57% Peer Review Q#19 87% Critical Think Q#20 92%	

Discussion Section

The results of the direct assessment via the Pseudoscience Project were positive and were similar to the data obtained in the previous assessment cycle.

Likewise, the results of the Moodle survey questions were similar to the results of the past two years. Students continue to meet the benchmark in all areas with one exception, the ability to recognize the negative consequences of pseudoscientific belief. In the revised version of this course starting Fall 2019, instructors will link the aspects of the course dealing with the reliability of data, the interpretation of data, and the scientific process to contemporary issues like vaccine denial. Given the contemporary topics, in addition to the more traditional pseudoscientific ones, students will hopefully be able to identify the negative consequences of pseudoscientific beliefs.

NATURAL SCIENCE CART – 2018-2019 Assessment Report

Learning Outcome #4: Effectively and intelligently communicate with others about recent discoveries and trends in the natural sciences.

Assessment Methods	Benchmark	Results	Actions Taken
Assessment 1 (direct): CORE 27X: Contemporary Issues Writing Assignment	At least 75% of students earn a score of 2 or better in each category on a 3-point assessment rubric	Target met. Rubric category scores: Course Mastery 88% Course in Context 86% Communication 87% Relevant references 89% Writing objectivity 83%	No actions taken at this time.
Assessment 2 (direct): CORE 27X: Course Mastery Assessment	At least 75% of students earn a score of 2 or better on a 3-point assessment rubric	Target met. Rubric category scores: Course Mastery 82% Context 81%	

Discussion:

Each instructor of CORE 27X develops an appropriate assessment for his/her course to evaluate each student's mastery of the course content, the ability to place the course content in context with contemporary issues and with other disciplines, and the ability to communicate those ideas to a non-scientist. The type of assignment used varies from research papers and presentations to exam questions. Students have consistently met this benchmark; no action is needed at this time.

NATURAL SCIENCE CART – 2018-2019 Assessment Report

Students should meet five course objectives common to both CORE 270 and CORE 27X.

At the end of the semester, students were asked how well they agreed with the five common course objectives.

Student's self-evaluation of meeting the course objectives

Course Objective	% of Students Selecting "Agree" or "Strongly Agree"
I developed critical thinking skills	81%
I developed a positive attitude in the life-long learning of natural science	79%
I developed a respect and appreciation for the role of science in politics, media and society.	84%
I gained an understanding of how scientific knowledge is obtained and the limitations of that knowledge	86%
My interest in natural science has increased after completing the course.	66%

Discussion:

These results are similar to the results from previous assessment cycles.

In the revised Core curriculum starting Fall 2019, all sections of CORE 270 and CORE 27X (NSCI I and NSCI II) will make direct connections to contemporary issues, to other disciplines within the sciences and to other disciplines within the Core curriculum. It is our hope that this deliberate interdisciplinary approach will work to increase the students' interests in the natural sciences after taking the courses.