

North Florida Community College Assessment Report

NFCC General Ed Competencies Key:

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| 1. Communicate through clear and effective writing | 7. Develop and apply scientific reasoning |
| 2. Communicate through clear and effective oral presentations | 8. Develop and apply ethical principles |
| 3. Read comprehensively and critically | 9. Appreciate the arts and humanities |
| 4. Think critically | 10. Develop knowledge of history |
| 5. Effectively use computers and other technologies | 11. Develop media and information literacy |
| 6. Develop and apply mathematical skills and logical reasoning | 12. Appreciate human and cultural diversity |

Departmental Instructional Unit: Life and Physical Sciences

Department Chairperson: Daniel Harris

Assessment Period Covered: Fall 2005-Summer B 2006

Section 1

Section 2

Section 3

Intended Instructional Unit Outcomes (learning objectives):

Assessment of Outcomes

Use of Results: Explain use of the assessment results to improve instructional unit (curriculum changes, delivery methods, etc.)

1.)	85% of students will demonstrate an understanding of the scientific method	NFCC General Ed Competencies Addressed (list by number): Means of assessment and criteria for success: (list all assessment activities used for this objective)	1,2,3,4,7 Tests and quizzes in which students are required to identify explanations and reasoning as being scientific or non-scientific. Written and oral assignments in which students will be asked to come up with a scientific explanation and/or a non-scientific explanation for a given phenomena or event and justify why the explanation/reasoning is scientific or not. Tests and quizzes in which students will be asked to diagram the scientific method in general and show each step of the scientific method as it applies in the context of some particular	Additional lectures or demonstrations and assignments are being developed to assist students that fail to be able to identify or engage in scientific reasoning.
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Department: Science

			hypothesis	
		Results of assessment activities:	Both written and oral reasoning presented by students in previous semesters has revealed that a majority of students are not able to distill the key elements of testing/empiricism in the scientific method but a large majority can after one lecture with several examples.	

2.)	80% of students will be able to follow technical instructions and use the technology and methods required to successfully perform laboratory experiments.	NFCC General Ed Competencies Addressed (list by number):	3,4,5,7	More lecture time is devoted to reviewing the lab procedure and measurement process. Instructor will ensure students perform different task with each new lab.
		Means of assessment and criteria for success: (list all assessment activities used for this objective)	Students will be given pre-lab quizzes and pass at 85% or better to demonstrate understanding of concepts and methods involved in lab experiment. All students will set up lab experiments and take measurements or make observations as appropriate to lab. Instructor will observe student activity and confirm student	

			<p>reported tasks for each individual. Every student will be asked to perform all major categories of lab tasks over the course of a semester.</p>	
		<p>Results of assessment activities:</p>	<p>Students working in groups have been observed to settle into permanent roles (e.g. one does all timing, another does all writing, another does all measurements, etc.). All students need to be able to perform any part of an experiment.</p>	

3.)	75% of students will be able to summarize results of experiments in comprehensive laboratory reports.	NFCC General Ed Competencies Addressed (list by number):	1,4,5,6,7	Examples of lab reports are distributed. Quizzes are administered to determine if students understand and can provide samples of each portion of a lab report.
		Means of assessment and criteria for success: (list all assessment activities used for this objective)	Students must write up and submit lab reports. All students must take part in all portions of lab report, including abstract, data, analysis and conclusion. Students must on the title page list the tasks performed by each individual.	
		Results of assessment activities:	Students have repeatedly submitted reports missing analysis or having incomplete analysis and/or conclusions. Students typically fall into permanent roles (e.g. someone always does the analysis, someone always does the recording, someone always does the conclusion, etc.)	
4.)	80% of students will demonstrate an understanding of Principles of Universality (the unifying concepts of the physical and biological sciences, e.g.: the same laws that govern the structure of the periodic table also govern the behavior of proteins and carbohydrates)	NFCC General Ed Competencies Addressed (list by number):	4, 7	Students needing improvement (where students need to see a bigger picture) instructor re-explains or ties principle back to a previously considered property or principle in some overarching law or theory. Course lectures are modified in subsequent semesters to highlight and emphasize how specific principles are manifested in different ways within the subject area of a single course and across the subject areas of the physical and biological sciences Instructors may choose from among allotting more time in class to discussing universal nature of laws, assigning additional projects or presentations that deal with universality and/or adding teaching materials/resources for students to address the many examples available . Examples of universality are stressed in reviews of unit tests and final exams.
		Means of assessment and criteria for success: (list all assessment activities used for this objective)	Coded multiple choice questions. Results are evaluated by collecting data on questions the specifically address this learning objective. Multiple choice questions dealing with this learning objective are evaluated by item analysis via Desire2Learn (D2L) or Scantron. Compare and contrast assignments.	
		Results of assessment activities:	This goal was identified by NFCC Science faculty (Summer of 2006) as a major objective for science students where significant improvement is needed. Starting fall of 2006 data will be collected	

			on questions used to establish learning of Principles of Universality. Data from these questions will be used to determine students understanding.	
5.)	80% of students will be able to read and interpret scientific data reported in graphical and other mathematical formats	NFCC General Ed Competencies Addressed (list by number):	3,4,6,7	A series of short lectures in remedial, intermediate and advanced mathematical analysis of data is offered to students in courses where more than a third of students cannot correctly read the information as presented in standard formats.
		Means of assessment and criteria for success: (list all assessment activities used for this objective)	Students will be given data in graphical, tabular, diagrammatic and other mathematical formats and be asked questions that require an ability to read and interpret that data in varying contexts at a success rate of 70% or better.	
		Results of assessment activities:	More than 50% of students have been identified as having great difficulty in reading and interpreting data presented graphically and otherwise without the assistance of the instructor.	