

Glendale Community College
STUDENT LEARNING OUTCOMES & CORE COMPETENCIES WORKSHEET

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Program Name: BIOLOGY

Semester: SPRING 2010

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Directions: *This model is suggested, but not mandatory:*

Column 1. Write one SLO in each row (samples on page 2). Use action verbs (samples on page 3). For most courses, 3-6 SLOs are recommended.

Column 2. Write your measurement method(s) and progress indicator(s) in each row for each SLO.

Column 3. Using the list of Core Competencies (Institutional Learning Outcomes) on pages 4 & 5, list each of the Core Competencies addressed by each SLO in each row.

Column 4. Choosing from the list of "Expected Exit Levels" of Competency (below), write the appropriate overall level for each SLO.

1 = Knowledge	2 = Comprehension	3 = Application	4 = Analysis	5 = Synthesis	6 = Evaluation
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Student Learning Outcome	Assessment Method(s) and/or Progress Indicator(s)	Core Competency (or Competencies)	Expected Exit Level
Students will be able to describe and demonstrate correct use of laboratory equipment	Laboratory performance and questions on lab practical exams	1, 7	3
Students will be able to interpret and create graphical displays of biological data and principles	Questions on laboratory practicals and/or lecture exams	1, 2, 4	4
Students will be well qualified as transfer students to 4 year university science programs	Survey students finishing Biology 101, 102 and 103 about their acceptance as transfer students	7	6
Students will be well prepared for upper-division biology courses after transfer	Survey students near the end of their first year after transfer about their confidence and success in upper division biology courses	7	3

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Sample SLOs

1 = Knowledge	2 = Comprehension	3 = Application	4 = Analysis	5 = Synthesis	6 = Evaluation
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Student Learning Outcome	Assessment Method(s) / Progress Indicator(s)	Core Competency (or Competencies)	Expected Exit Level
<i>AA in Math:</i> Apply mathematical concepts to problems in mathematics, computer science, and life and physical sciences.	Embedded questions throughout the course sequences, post-test for last course in sequence	2	6
<i>AA in Art History:</i> Research and discuss the nature and achievements of art in other times and other cultures.	Thesis and portfolio	4	6
<i>Learning Center:</i> Apply the available resources to improve coursework.	Student survey	6	3
<i>Certificate in Real Estate:</i> Develop a clear action plan to launch a successful real estate career upon graduation, discharge or retirement	Capstone course	7	5

EXAMPLES OF PROGRAM-LEVEL OUTCOMES:

<http://www.k-state.edu/assessment/degprogunit/>

<http://apu.apus.edu/Academics/Degree-Programs/index.htm>

<http://www.smccd.net/accounts/canslo/canslo.htm>

Student Learning Objectives (SLO)

Action Verb List

ENMU Academics Special Programs Assessment Resource Office Faculty Assessment Assessment Manual
Action Verb List

Assessment Manual Suggested Verbs to Use in Each Level of Thinking Skills

Below are terms (verbs) that can be used when creating student learning outcomes for a course or degree program.

Knowledge

Count
Define
Describe
Draw
Identify
Labels
List
Match
Name
Outlines
Point
Quote
Read
Recall
Recite
Recognize
Record
Repeat
Reproduces
Selects
State
Write
Use

Comprehension

Associate
Compute
Convert
Defend
Discuss
Distinguish
Estimate
Explain
Extend
Extrapolate
Generalize
Give examples
Infer
Paraphrase
Predict
Rewrite
Summarize

Application

Add
Apply
Calculate
Change
Classify
Complete
Compute
Demonstrate
Discover
Divide
Examine
Graph
Interpolate
Manipulate
Modify
Operate
Prepare
Produce
Show
Solve
Subtract
Translate

Analysis

Analyze
Arrange
Breakdown
Combine
Design
Detect
Develop
Diagram
Differentiate
Discriminate
Illustrate
Infer
Outline
Point out
Relate
Select
Separate
Subdivide
Utilize

Synthesis

Categorize
Combine
Compile
Compose
Create
Drive
Design
Devise
Explain
Generate
Group
Integrate
Modify
Order
Organize
Plan
Prescribe
Propose
Rearrange
Reconstruct
Related
Reorganize
Revise

Evaluation

Appraise
Assess
Compare
Conclude
Contrast
Criticize
Critique
Determine
Grade
Interpret
Judge
Justify
Measure
Rank
Rate
Support
Test

Source:

http://www.enmu.edu/academics/excellence/assessment/faculty/manual/verb_list.shtml (10/9/2006)

GCC CORE COMPETENCIES (*Institutional Learning Outcomes*)

1) Communication

- a) Reading
- b) Writing
- c) Listening
- d) Speaking and/or Conversing and/or Debating
- e) Interpersonal Interactions

Definition: Learners express themselves clearly and concisely to others in logical, well-organized papers and/or verbal presentations using documentation and quantitative tools when appropriate. Learners listen, understand, debate, and use information communicated by others.

2) Mathematical Competency/Quantitative Reasoning

- a) Interpret and Construct Mathematical Models
- b) Solve Problems Using Quantitative Models
- c) Construct Arguments Using Numerical/Statistical Support

Definition: Learners understand, interpret, and manipulate numeric or symbolic information; solve problems by selecting and applying appropriate quantitative methods such as arithmetic, quantitative reasoning, estimation, measurement, probability, statistics, algebra, geometry and trigonometry; and present information and construct arguments with the use of numerical and/or statistical support.

3) Information Competency

- a) Research Strategies
- b) Information Location/Retrieval
- c) Evaluation of Information
- d) Ethical & Legal Use of Information

Definition: Learners recognize the need for information and define a research topic; select, access, and use appropriate sources to obtain relevant data; evaluate sources for reliability and accuracy; and use information in an ethical and legal manner.

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4) Critical Thinking

- a) Evaluation
- b) Analysis and/or Synthesis
- c) Interpretation and/or Inference
- d) Problem Solving
- e) Construct and/or Deconstruct Arguments

Definition: Learners evaluate the credibility and significance of information, effectively interpret, analyze, synthesize explain, and infer concepts and ideas; solve problems and make decisions; and construct and deconstruct arguments.

5) Global Awareness and Appreciation:

- a) Scientific Complexities
- b) Social and Cultural Diversity
- c) Artistic Expression and Variety
- d) Ethical Reasoning
- e) Environmental Issues
- f) Politics

Definition: Learners recognize and analyze the interconnectedness of global, national, and local concerns, analyzing cultural, political, social and environmental issues from multiple perspectives; they recognize the interdependence of the global environment and humanity.

6) Personal Responsibility

- a) Self Management
- b) Self Awareness
- c) Physical Wellness
- d) Study Skills

Definition: Learners demonstrate an understanding of the consequences, both positive and negative, of their own actions; set personal, academic and career goals; and seek and utilize the appropriate resources to reach such goals.

7) Application of Knowledge

- a) Computer Skills
- b) Technical Skills
- c) Workplace Skills
- d) Lifelong Learning

Definition: Learners maintain, improve and transfer academic and technical skills to the workplace; demonstrate life-long learning skills by having the ability to acquire and employ new knowledge; and set goals and devise strategies for personal and professional development.