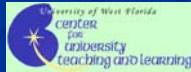


# Writing Assessable Student Learning Outcomes for Course Syllabi and the CCR Process

Claudia J. Stanny  
Center for University Teaching and Learning  
May 17 & 18, 2005



## UWF SACS Reaffirmation of Accreditation Compliance Certification Review

3.3.1 The institution identifies expected outcomes for its educational programs and its administrative and educational support services; assesses whether it achieves these outcomes; and provides evidence of improvement based on analysis of those results.

## UWF SACS Reaffirmation of Accreditation Compliance Certification Review

3.4.1 The institution demonstrates that each educational program for which academic credit is awarded (a) is approved by the faculty and the administration, and (b) establishes and evaluates program and learning outcomes.

*Comments: The institution is still in the initial stages of establishing and evaluating program and learning outcomes. It, therefore, needs to provide documentation that such outcomes have been established and evaluated.*

## UWF SACS Reaffirmation of Accreditation Compliance Certification Review

3.5.1 The institution identifies college-level competencies within the general education core and provides evidence that graduates have attained those competencies.

*Comments: As the report indicates the institution needs to complete additional work in identifying college-level competencies within the general education core and providing evidence that graduates have attained those competencies. The institution should provide evidence that it has established those competencies and that their graduates have attained them.*

## Impact on the CCR Process

- Document the establishment of appropriate Student Learning Outcomes
  - Program Level Outcomes (Academic Learning Compacts)
  - Course Level Outcomes (Student Learning Outcomes)
- Document assessment plans for academic programs
- Identify courses that include embedded assessments and document embedded assessments in the CCR

## Writing Student Learning Outcomes

- | Course Objectives   | Student Learning Outcomes                                      |
|---|--|
| ■ Focus on <i>Instructor</i> Behavior   | ■ Focus on <i>Student</i> Behavior                             |
| ■ Describe what the instructor will cover, present, introduce, discuss, etc. in this course | ■ Describe what the student will do as a result of this course |

## Solving Common Problems with Student Learning Outcomes

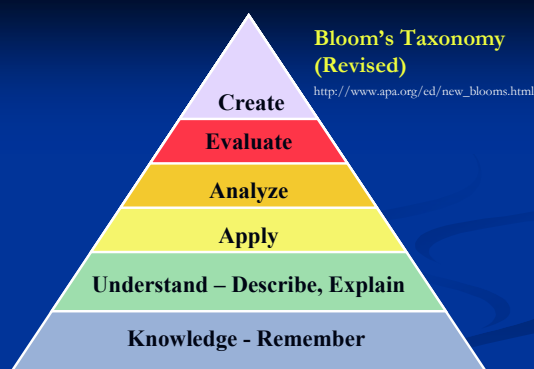
- SLOs are not measurable as written
  - Student behaviors and quality of products they produce can be measured
  - Multiple narrowly-defined measures can be used as convergent evidence for more abstract goals
- Seek a balance between the number of SLOs and the breadth of the SLOs
  - Avoid SLOs that are too broad to be measured
  - Avoid lengthy lists of extremely narrow SLOs

## Solving Common Problems with Student Learning Outcomes

- SLOs should be related to program ALCs – Each course should contribute to the achievement of one or more program ALCs
  - Every course should have SLOs that are related to one or more of the program ALCs
  - Courses are not expected to have SLOs for every ALC in the program
  - Courses may have SLOs that are not specifically related to any ALCs

## Writing SLOs for Courses at Differing Levels in the Curriculum

- Lower Division / Introductory Courses
- Upper Division Courses
- Graduate Courses



Based on an APA adaptation of Anderson, L.W. & Krathwohl, D.R. (Eds.) (2001)

## Action Words for Bloom's Taxonomy

Action Words for Bloom's Taxonomy				
Knowledge	Understand	Apply	Analyze	Evaluate
define	explain	solve	analyze	reframe
identify	describe	apply	compare	criticize
describe	interpret	illustrate	classify	evaluate
label	paraphrase	modify	contrast	order
list	summarize	use	distinguish	appraise
name	classify	calculate	infer	judge
state	compare	change	separate	support
match	differentiate	choose	explain	compare
recognize	discuss	demonstrate	select	decide
select	distinguish	discover	categorize	discriminate
examine	extend	experiment	connect	recommend
locate	predict	relate	differentiate	summarize
memorize	associate	show	discriminate	assess
quote	contrast	sketch	divide	choose
recall	convert	complete	order	convince
reproduce	demonstrate	construct	point out	defend

Visit the CUTL web site for a more complete list: <http://uwf.edu/cutl/>

## Samples of Student Learning Outcomes

- Based on CCRs submitted for review in 2004
- Note the use of action words to describe what students will be able to do
- Note the relation between the choice of action words and the level of learning expected for a given course (undergraduate, graduate)

### SLOs for HSC 4XX4 Health Sciences Research Seminar

- Discuss recent advances in health sciences research
- Be able to interpret and discuss recent publications in health sciences research
- Be able to design a basic research approach to a specific problem in the health sciences
- Present in both written and oral form a report on a specific research topic in the health sciences and be able to defend their conclusions related to that topic

### Writing SLOs for Undergraduate versus Graduate Courses on Similar Topics

- Two separate courses, offered at independent times (*not* dual listed)
- SLOs should reflect the differences in the sophistication of the content and performance skill associated with each course
- Advanced courses should include SLOs that reflect higher-order learning outcomes in the Bloom pyramid

### SLOs for MAP 4XXX Probability and Distribution Theory

- Apply the concepts of probability, conditional probability, stochastic independence expectations, moment generating functions of discrete and continuous random variables to solve real-world problems
- Apply the concepts of expectations, joint densities, marginal and conditional densities, conditional expectations; probability inequalities, transformation of r.v.'s and densities, order statistics, distribution theory to solve real-world problems
- Use probability theory to design research projects
- Use distribution theory to solve some real-world problems with the help of computers.

### SLOs for MAP 5XXX Advanced Probability and Inferences

- Apply the concepts of probability, limit theorems, limiting distributions, order statistics, WLLN, SLLN, CLT to solve real-world problems
- Apply the concepts in point an interval estimation, measures of quality of estimates, Exponential families, Completeness, Cramer-Ro inequality, Rao-Blackwell theorem, MVUE, MLE principles, Bayes' and minimax estimation, Robust estimation; Advanced topics of hypothesis testing to solve real-world problems
- Use probability and distribution theories to design research projects
- Use probability and distribution theories to solve some real-world problems with the help of computers

### Writing Student Learning Outcomes for Dual Listed Courses

- SLOs for each course must be *measurable*
- Course description and SLOs should describe courses that could *realistically be taught in a merged classroom* (with a mix of undergraduate and graduate students who meet with the instructor at the same time)
- *Graduate level course* should include additional SLOs that describe higher-order learning outcomes expected of students enrolled for graduate credit

### SLOs for HIS 4XXX Oral and Community History

- Incorporate specific public history research methodologies in respect to community change and development, oral history collection and preservation, and understand legal elements relating to Human Subjects data collection
- Communicate how various Public History methodologies and techniques interrelate to specific types of historical research including oral history, institutional history, and community history
- Incorporate their investigative and interpretive abilities to community-based oral history projects as learned through lectures, readings, discussions, and site visits
- Extend [*apply*] their abilities in oral and community history beyond the classroom setting into future projects based upon their group-project experience during the course

## SLOs for HIS 5077 Oral and Community History

- Incorporate specific public history research methodologies in respect to community change and development, oral history collection and preservation, and understand legal elements relating to Human Subjects data collection
- Communicate how various Public History methodologies and techniques interrelate to specific types of historical research including oral history, institutional history, and community history
- Incorporate their investigative and interpretive abilities to community-based oral history projects as learned through lectures, readings, discussions, and site visits
- Extend [apply] their abilities in oral and community history beyond the classroom setting into future projects based upon their group-project experience during the course

## SLOs for HIS 5077 Oral and Community History

### *Additional SLOs that describe advanced learning outcomes for graduate students*

- Lead community-focused oral history projects and direct other Public History practitioners in the collection, analysis, and interpretation of oral history materials
- Develop a highly-proficient level understanding of oral history methods and be capable of conducting professional-quality oral-history projects for clients

## Assessment Plans in the CCR Process

### Requirements for CCRs for: New Programs and Specializations Modifications to Existing Programs and Specializations

- Identify Student Learning Outcomes for the program or specialization
- Connect Student Learning Outcomes to the Academic Learning Compacts
- Provide a Curriculum Map for the program
- Document an assessment plan for the program
- CCRs for courses that include embedded assessments must document these assessments

## Program Assessment Plan

- Define goals and outcomes for the program
- Identify and describe measures to be used
- Determine the stage in the program curriculum where these measures will be made and the frequency of data collection
- Determine how the results will be used to make decisions about curriculum change and enhancement
- Establish a timetable for assessment activities
- Determine who will review the results of these measures

Adapted from the Board of Regents of the University of Wisconsin System (1998) Outcomes Assessment Manual

## Define goals and outcomes for the program

### Academic Learning Compacts

- Content
- Critical Thinking
- Communication
- Integrity / Ethics
- Project Management

### Student Learning Outcomes

- Recognize and apply concepts, principles and theories in the following areas (list of content)
- Design and conduct scientific experiments including analysis and interpretation of data
- Communicate effectively in writing
- Make and defend ethical judgments in keeping with professional standards
- Function effectively on multi-disciplinary teams
- Deliver engineering results that meet performance standards for cost, safety and quality

Selected SLOs from Computer Engineering (UWF Dept. of Electrical and Computer Engineering)

## Using Curriculum Maps to Evaluate Likely Success of Curriculum in Achieving Student Learning Outcomes

## Curriculum Map for a Program

	Academic Learning Compacts				
	Content	Critical Thinking	Communication	Ethics / Integrity	Project Management
Intro Course	X			X	
Course 1	X	X		X	
Course 2	X		X		X
Course 3	X	X	X		
Capstone Course	X	X	X	X	X

- Identify courses where ALCs are likely to be achieved
- Identify gaps in the curriculum where an ALC might not be addressed as well as hoped
- Identify courses that might be suitable for an embedded assessment

## Relating ALCs to Course SLOs

- | Intro Course                           | Course 2                                 |
|--|--|
| ■ SLOs related to Content ALC          | ■ SLOs related to Content ALC            |
| ■ SLOs related to Ethics/Integrity ALC | ■ SLOs related to Communication ALC      |
| ■ Other SLOs                           | ■ SLOs related to Project Management ALC |
|  | ■ Other SLOs                             |

## Identify and describe measures to be used

- Direct Measures
  - Sample of student work evaluated with an objective rubric (senior capstone course assignment)
  - Objective examination (locally developed or nationally normed content exam)
- Indirect Measures
  - Self-report data (senior exit survey)
  - Alumni survey
  - Employee survey

## Embedded Assessments

- Graded student work that serves a double purpose
  - Work is a course requirement that determines part of the course grade
  - Work is also evaluated with a rubric for use in assessment of departmental goals
- Ensures that students are motivated to produce their best efforts
- Ensures a representative sample of students (all majors will take this course and complete this work at some time)

## Evaluate the validity of the measures used

- Indirect measures of an ALC can be corroborated with valid direct measures of this ALC
- Locally developed direct measures can be validated by periodic comparison to external measures with known reliability and validity (“gold standards”)
- Internal rubrics for student work can be validated by comparing outcomes when these rubrics are used by trained external judges

## Justification of the Proposed Assessment Strategy

- Why are these assessment measures better than other possible measures?
- Is the implementation of this assessment plan feasible?
  - Does the department have sufficient faculty resources available for implementation?
  - Are there sufficient financial resources available?
  - Are there hazards associated with implementing this plan?

**Determine the stage in the program curriculum where these measures will be made**

- Identify courses that currently include assignments that could be used as assessments
- Determine the level of achievement expected among students enrolled in this course
  - Create natural pretest/posttest comparisons as students progress through the curriculum
  - Obtain immediate cross-sectional comparisons in the curriculum if similar assessments can be obtained from courses taken early and late in the major

**Determine how the results will be used to make decisions about curriculum change and enhancement**

Assessment measures should provide data to answer a question about the effectiveness of the curriculum

- Are students in introductory courses learning the skills they need to succeed with higher-level learning in later courses?
- Are graduating seniors functioning at the level we hope to achieve with this curriculum?

**Establish a timetable for assessment activities**

- Determine the appropriate cycle for collection of different assessment measures
  - Continuous assessment (e.g., Senior Exit Surveys)
  - Cyclic assessment of some ALCs
- Determine when assessment data are needed for dissemination to various internal and external reviewers
- Plan to review assessment data with enough lead time to inform department decisions about curriculum change, faculty development, etc.

**Determine who will review the results of these measures**

- Determine the format needed for dissemination of assessment data to interested reviewers
- Departmental needs for curriculum evaluation and revision
- External Reviewers
  - SACS
  - Board of Governors
  - Board of Trustees
  - Departmental 5-year Reviews
  - Accreditation Reviews with professional disciplines

**Sample Assessment Plan**

Measures	Academic Learning Compacts					Use of Data
	Content	Critical Thinking	Communication	Ethics / Integrity	Project Management	
Direct Measure – Content Exam	X	X		X		
Indirect Measure – Senior Survey	X	X	X	X	X	
Rubric to Assess Research Project		X	X	X	X	

Note: *Use of Data* section will include information about the frequency of data collection, who will review this information, and how it will be used to make decisions about the curriculum.