

# **A CRC Course SLO Primer**



**CRC Curriculum Committee 2004-2005**  
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## Definitions and Descriptions:

### Course Student Learning Outcome:

- SLOs are statements of principal skills and abilities a student will possess upon successfully finishing a class.
- Broader in scope than “objectives”, SLOs describe the major goals of the class – things that a successful student will take away from the class for use in his/her future life.
- SLOs include information on how the skills/abilities will be assessed by the professor.
- SLOs include or refer to a plan to incorporate feedback and “close the loop” by revising the way the class is taught.
- *At CRC, we are going to list the course SLOs on our course outlines and on our syllabi.*

### SLO Assessment (courses):

- When describing SLOs, “assessment” refers to the ways in which student learning is evaluated. The term “evaluation methods” may also be used.
- SLO assessment focuses on the application of knowledge (rather than the knowledge itself) and demonstration of directly measurable abilities and skills.
- SLO assessment involves multiple ways of evaluating student learning: exams, yes, but also many other things - term papers, problem sets, presentations, performance evaluations, “practical” exams, lab reports, essays, journals, portfolios, creative projects, reflective essays, etc.
- SLO assessment can also involve the student feedback techniques that we’ve been calling “classroom assessment” – short responses from students that tell the professor how a particular lecture or lab is working.
- The type of standardized tests being implemented in the K-12 system does not represent SLO assessment of the type we want to use.
- *At CRC, the general types of assessments that would be used in a class will be listed on the course outline, and the details (e.g. rubrics for grading) – which may vary from professor to professor – will be on syllabi.*

### Closing the assessment loop (courses):

- The results of SLO assessments are used to improve the way the course is taught. SLO assessment is used explicitly to improve what we do in the classroom. The focus is on how the results of the student work tell you not just what they have learned, but what you might do to improve the learning process.
- Of course, we all do this informally in our classes already! The use of SLOs refines this process and gives us another chance to express our thoughtfulness in this area.
- *At CRC, our course outlines will contain statements that show that we are going to close the loop. The information is gathered and evaluated by you in your classroom. You design your own course improvements. Of course, the changes that you design to improve your courses may result in revisions of the course outline.*

**Course element alignment:**

- Since we write our SLOs to describe what we want the students to learn how to do, we design our teaching methods and assessments to clearly match up with the SLOs. You are not “teaching to the SLOs” but rather writing the SLO to reflect what you think is most important to teach.
- One way to show course alignment is to make a grid that lines up each SLO with the methods used to teach the skill and the assessments used to evaluate learning. You may want to do this on your syllabus since it helps provide clear expectations to the students.
- *At CRC, we demonstrate course element alignment on our course outlines. We ask that the way you write your course outline makes it clear how the methods of instruction and methods of evaluation connect with the SLOs.*

# Writing course SLOs

## 1. Writing the SLO statements:

For each SLO:

- In a sentence, describe a major application of knowledge that successful students will gain from the course.
- Consider the skills and abilities needed after the student leaves your course...in the next course in the sequence, on the job, after transfer, etc.
- Focus on the big picture for the SLOS. You will use objectives to describe more specific skills.
- Remember that you can include three kinds of abilities: cognitive (critical thinking), psychomotor (proficiently conducting specific motor tasks), and affective (evaluating ethical situations and making value judgments).
- Be sure the outcome can be clearly linked to methods of instruction.
- Be sure that the outcome can be clearly linked to assessments.

The number of SLOs and the exact format will vary from discipline to discipline.

- Some will be very “big picture” – e.g. “students will be able to apply critical thinking techniques to philosophical problems”
- Others may be somewhat more focused – e.g. “the student will be able to evaluate medical records in order to assess compliance with regulations for health care services including Medicare, Medicaid, and Managed Care.”

*Course SLOs are entered in the course outline, along with the related objectives in the section titled “Learning Outcomes and Objectives”. An example of how this can be entered on the course outline is given at the end of this section.*

### Entering SLOs in to SOCRATES.

- In the Learning Outcomes and Objectives” section of SOCRATES you will be given a series of text boxes. You can enter one SLO or one objective in each text box.
- The objectives are already in SOCRATES.
- You can add the SLOs in various formats – all in one text box at the beginning or end of the list of objectives or interspersed with the objectives.
- In this example at the end of this section, I have numbered the SLOs and listed the related objectives below each SLO.
- *Note: The curriculum committee does not expect you to revise all of your course outlines right away. We foresee infusing SLOs into our course outlines over the duration of our next 3-year long curriculum review cycle. Of course, if you want to do it now, we will be glad to help!*

## 2. Assessment and alignment:

**Assessment is reflected in two sections of the course outline: Evaluation Methods and Independent Assignments**

- When writing these sections of the course outline indicate what general types of assessments will be used to evaluate student work.
- Be sure to list a variety of measures that may be used in the course.

- “Independent Assignments” means work done outside of class time – homework, including reading/studying. The assumption is that 2 hours of outside work is required for each hour in lecture during the week.
- The connection of the assessment to the SLOs should be obvious.
- This is more than just a list of types of assessment. For example, saying “Students will write essays comparing and contrasting the basic components of the major psychological perspectives” is much better than saying “Assigned essays”.
- Include a statement that makes it clear that you plan to “close the loop” by revising your teaching based on the results of the assessments.
- Details of assessment (e.g. rubrics for grading, specific assignments, etc.) do not have to be given on the course outline...these will show up on the syllabus for each class.

**The Methods of Instruction section should also align with the SLOs.**

- This section explains what methods will be used to teach the course and how those methods tie back to the SLOs.
- The connection of the assessment to the SLOs should be obvious.
- Be clear and specific. For example, saying “Guided discussion emphasizing the analysis of cultural patterns will be used to develop critical thinking skills” is much better than saying “Discussion”.
- Include a statement that makes it clear that you plan to “close the loop” by revising your teaching based on the results of the assessments.
- Details of instructional methodology (topics within lectures, instructions for group work, etc.) do not have to be given on the course outline...these will show up on the syllabus for each class.

## **CHECK LIST FOR COURSE SLO DEVELOPMENT**

### **Writing Outcomes:**

- Is the focus on the big picture – a fundamental result of the course?
- Do you describe what the student can DO with the knowledge they have acquired in the class?
- Can the outcome be assessed based on work produced by the student?
- Do the SLOs represent skills and abilities that the students need to carry with them to the next stages of their lives and education?
- Is the language clear?

### **Designing Assessments:**

- Do the assessments clearly link to the SLOs?
- Are multiple measures for assessment listed?
- Is it clear that the results of the assessments will be used to improve the course?

### **Aligning course elements:**

- Do the Methods of Instruction, Methods of Evaluation, and Independent Assignments sections of the course outline clearly link to the SLOs?
- Is enough information provided in these sections so that it can guide the teaching of a course or the writing of a syllabus?
- Is there enough flexibility for individual professors teaching the course?

## **An example of how SLOs may be infused into the course outline Biology 307**

### **“Outcomes and Objectives” Section of the Course Outline:**

SLO (1) Articulate the importance of the diversity of organisms to ecosystem functioning.

- correctly utilize the vocabulary of biology.
- identify the characteristics used to classify organisms into major taxonomic groups.
- compare and contrast the roles of fungi, plants, and animals in communities and ecosystems

SLO (2) Explain the basic mechanisms by which organisms survive and evolve.

- outline the basic processes and components of prokaryotic and eukaryotic cells.
- compare and contrast the ways in which fungi, plants and animals solve physiological problems.
- describe the processes by which organisms maintain homeostasis.
- solve Mendelian genetic problems using Punnett squares, pedigrees, and/or similar methods.
- describe the basic processes of molecular genetics.
- explain the process of evolution by natural selection.

SLO (3) Utilize the scientific method and evaluate the scientific validity of information presented by the media and other sources.

- assess the results of scientific investigation into biological questions.
- design and conduct basic scientific inquiries into biological questions.
- draw reasonable conclusions from biological data

SLO (4) Appraise the importance of biology to personal and community issues and be able to gather, and think critically about, biological information relevant to one's life.

- evaluate the implications of genetic biotechnology for modern life.
- articulate the value of biological knowledge to human populations
- provide examples of the relevance of biology to personal interests and community issues.

### **Instruction Methods and In-class Assignments:**

Laboratory work will develop skills in utilizing the scientific method, critically evaluating information, and solving biological problems relevant to personal and community issues. Instructional methods used in labs will include student-designed scientific inquiries into biological questions; exercises assessing the ways in which organisms maintain homeostasis, and problem-based learning exploring genetic, ecological, and evolutionary principles. Group

discussion, both student-led and instructor-guided may be utilized in lab to assist students in learning to explain biological information clearly and articulate the importance of biological processes to community and personal issues.

Lectures will (1) guide students through a comparative analysis of the functioning of organisms from the cellular to the ecosystem levels (2) demonstrate approaches to solving biological problems relevant to society such as genetic and ecological issues, and (3) assist students in developing the technical vocabulary used in biology. Lecture methods of instruction may include traditional lecture, guided discussion, and group activities.

Instruction methods are further detailed on course syllabi. They revised on an ongoing basis as the result of information provided by student feedback during class discussion and labs, and the results of assessments of student learning.

### **Typical Evaluation and Assessment Methods:**

Formative assessment may be provided by direct observation of students during laboratory work, class discussion, and by peer-assisted learning problem solving (e.g. "group quizzes"). Some of this assessment may not be graded. Additional information may be provided by "classroom assessment" techniques such as those described by Cross and Angelo.

Summative assessment methods may include exams, reports, projects, and/or presentations. Objective examinations will emphasize biological vocabulary mastery, problem solving, classification of organisms, and identification of structures. Essay exams will emphasize correct use of biological terms, explanation of patterns and processes, problem solving, and evaluation of information. Written reports, creative projects, and/or presentations will emphasize critical thinking, use of the scientific inquiry process, the importance of biodiversity, and the application of biology to the "real life" of the students.

Details of assessment methods and rubrics are elucidated in the course syllabi. Methods of evaluation/assessment as described in course syllabi will be revised each semester based on analysis of student assessments from the previous semester.

### **Independent assignments:**

Independent assignments will include practice in extracting and assessing information from the textbook and other resource materials, problem-solving exercises, and written work that demonstrates the ability to clearly explain the scientific method and biological concepts. These assignments may include, but are not limited to reading assignments, problem-solving assignments, practice tests, reports detailing the results of student-designed inquiry projects, papers analyzing current biological issues affecting society, and production of creative projects linking the students interests to biological topics. Some of these assignments may be produced by groups of students.