

# Appendix 1

# Guidelines for Including Course Goals/Objectives and Learning Outcomes (SLOs) on Course Syllabi

# How do Course Goals/Objectives and Student Learning Outcomes Differ?

Course goals are broad, general statements that provide a framework for the course. They can be presented in narrative form as part of the course description or listed separately. Goals help frame your content and approach to learning, but do not specify ***what you expect students to learn or how you will assess their mastery of course content.***

**Examples of Course Goals:** This course will:

**Improve** your understanding of . Help you gain an **appreciation** for multiple, global perspectives within . Help you see the **value** of .

**Explore** the relationship between and .

**Encourage** you to become reflective, critical learners .

**Provide opportunities** for collaboration, investigation and .

**Other terms used to define goals:** consider, take into account, become familiar with, examine, take a look at, participate in; these are all “big picture” statements that cannot be measured. Goals can also focus on dispositions: attitudes, perceptions or feelings or make general statements about topics to be addressed.

**Student Learning Outcomes focus on what you expect students to learn in the course.** These statements are specific and translate your course goals into measurable outcomes. They help you determine how students will demonstrate mastery of the material and skills covered in your course. They can begin with the phrase: “Students will be able to”. Here are some examples:

**Define** the relationship between and . **Examine** diversity within . **Present** alternative theories of . **Apply** to .

**Analyze** the relationship between and .

**Compare and contrast** the following theories with regard to

**Critically examine** , grounding their own opinion in course theories.

**Other terms that might be used to define learning outcomes:** describe, research, identify, categorize, explain, demonstrate, perform, write, evaluate, report, create, discuss, appraise, synthesize, construct, design, present.

# Student Learning Outcomes Connect to Course Assessment and Grading Policies

The more clearly you state your student learning outcomes, the easier it is to tie them to assessment measures: tests, quizzes, research papers, reflections, presentations, internships, group projects, experiments or performances. The chart below illustrates how this might work. I.e. for each student learning outcome, how will your students demonstrate competency? Will it be an exam question, a paper topic, the focus of an individual or group presentation? What will students need to do or write to demonstrate to you that they have mastered a concept or skill?

For example:

|  |  |  |
| --- | --- | --- |
| **Student Learning Outcome** |  | **Assessment Measures** |
| Students will be able to investigate, critique, evaluate |  | Research paper, exam question, laboratory experiment |
| Students will be able to collaborate, identify multiple perspectives |  | Group task or project, peer editing, an assignments given at the start of the semester and revised at the end |
| Students will be able to demonstrate, implement, create, apply |  | Internship, group project, experiment, performance, research paper |
| Students will be able to analyze, synthesize, evaluate |  | Research paper, exam question, project |
| Students will be able to describe, compare/contrast, critically examine |  | Research paper, exam question, demonstration, group project, performance |

For a list of New Mexico Higher Education Department (HED) approved list of Student Learning Outcomes by Department and Course, please go to the following website

[*https://hed.state.nm.us/uploads/documents/Course\_Catalog\_V7.pdf*](https://hed.state.nm.us/uploads/documents/Course_Catalog_V7.pdf)

You must include these SLOs at a minimum. For courses not found in this document, you must use a minimum of three SLOs per course that are measurable*.*

Adapted from:

<https://www.american.edu/ocl/volunteer/upload/guidelines-for-including-learning-outcomes-on-course-syllabi.pdf>

# VERBS FOR USE IN WRITING LEARNING OBJECTIVES

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **KNOWLEDGE**  Recall of information | **COMPREHENSION**  Interpret information in one 's own words | **APPLICATION**  Use knowledge  or generalization in a new situation | **ANALYSIS**  Break down knowledge into parts and show relationships among arts | **SYNTHESIS**  Bring together parts of knowledge to form a whole and build relationships or new situations | **EVALUATION**  Make judgments on basis of given criteria |
| Define  List  Recall  Name  Recognize  State  Repeat  Record  Label  Arrange  Duplicate  Match  Memorize  Order  Relate  Reproduce | Discuss  Describe  Explain  Identify  Translate  Restate  Recognize  Express  Locate  Report  Tell  Convert  Distinguish  Estimate  Indicate Select  Sort | Compute  Demonstrate  Illustrate  Operate  Perform  Interpret  Apply  Employ  Use  Practice  Schedule  Sketch  Prepare  Modify  Predict  Extrapolate  Manage  Choose  Solve | Distinguish  Analyze  Differentiate  Compare  Contrast Categorize  Appraise  Calculate  Test  Diagram  Inspect Question  Relate  Solve Examine  Classify  Deduce  Outline  Inventory  Experiment  Discriminate | Diagnose  Propose Design  Manage Hypothesize  Summarize  Compose  Plan Formulate  Arrange  Assemble  Collect  Construct  Create Organize  Prepare  Modify  Invent  Generate  Set up  Synthesize  Write | Evaluate  Assess  Justify  Appraise  Rate Revise  Score  Select  Choose  Estimate  Measure  Argue  Decide  Criticize  Attack  Defend  Judge  Predict  Support  Value |

# Appendix 2: Examples of Course Requirements

At a minimum list those assessments and activities that contribute to the final course grade. The point (percentage) value each contributes should also be listed.

**Example 1:**

There will be individual homework assignments, in-class quizzes and individual term projects. The term projects will use molecular visualization software to manipulate proteins, polymers and nanomaterials in 3D and molecular dynamics simulations to understand how water percolates through carbon nanotubes.

|  |  |  |
| --- | --- | --- |
| **Class Activity** | **Undergraduate** | **Graduate** |
| Quizzes | 30% | 30% |
| Homework Assignments | 35% | 30% |
| Final Term Project | 35% | 40% |

**Example 2:**

**Assignments**:

In addition to scheduled exams, periodic assignments (readings, case study, short answer/essays and quizzes) will be assigned. The point values will be factored into the total points available for the course. These assignments will be conducted throughout the semester and are at the discretion of the instructor and IOR. Students must be present during class to participate in any in-class assignments.

|  |  |
| --- | --- |
| **Assessments: Activity** | **Percent/Contribution** |
| Assignments or HW | 10% |
| In-class activities/quizzes | 15% |
| Exam 1 | 37.5% |
| Exam 2 | 37.5% |

**Example 3:**

**Assignments:**

All assignments are closed at the listed due date and will not be accepted late unless circumstances are discussed and negotiated with the instructor **well ahead of the due date u**nless otherwise announced, all assignments are due on Sundays by 11:59 p.m. (midnight) for that week. This includes discussion posts.

|  |  |
| --- | --- |
| Type of Assignment | Points |
| Discussion Forum | 15 |
| Online Learning Principles and Theory Review | 15 |
| Mid-term Exam | 30 |
| Online Learning Strategies Project | 40 |
| **TOTAL POINTS** | **100** |

# Appendix 3: Examples of Grading

There is no universal policy on “how” to convert scores earned into letter grades. Your preferred measure should be clearly presented in this section of the syllabus. Some examples are provided here:

Example 1: Standard Percentages

Final grades will be based on the sum of all possible course points as noted above.

**Percentage of available points Grade**

90-100 A

80-89 B

70-79 C

60-69 D

Below 60 F

Each individual instructor determines if they would like to use a plus/minus grading scale as well.

Other options for grading include Class Mean Based (curved) or rubric performance based.

# Appendix 4

**Course Schedule: *SAMPLE***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WEEK** | **SECTIONS** | **Description** | **Assessments** | **Lab/Practicum** |
| 1 | 1.1 – 1.5 | Applications of statistics, data, data sources, descriptive statistics and inference. |  |  |
| 2 | 2.1 – 2.2 | Summarizing data – qualitative and quantitative: bar graphs, pie charts, frequency, dot plots, histograms. |  |  |
| 3 | 2.3 – 2.4 | Stem and leaf, scatter diagrams, review |  |  |
| 4 | 3.1 – 3.3 | Measures of location, variability, outliers |  |  |
| 5 | 3.4 – 3.5 | Data analysis, five-number summary, box plots, covariance, correlation coefficient |  |  |
| 6 | 3.6 | Weighted mean, grouped data, review |  |  |
| 7 | 4.1 – 4.2 | Experiments, counting rules, combinations, permutations, events |  |  |
| 8 | 4.3 – 4.4 | Basic rules, conditional probability, independent, dependent events |  |  |
| 9 | 4.5 | Bayes’ Theorem and review |  |  |
| 10 | 5.1 – 5.3 | Random variables, discrete random variables, distributions, expected value and variance |  |  |
| 11 | 5.4 – 5.5 | Binomial distribution, Poisson distribution. |  |  |
| 12 | 6.1 | Review and Uniform Probability Distributions |  |  |
| 13 | 6.2 – 6.3 | Normal Probability Distribution, normal curve, standard normal distributions, applications |  |  |
| 14 | 6.4 | Exponential probability distribution, relationship between Poisson and exponential distributions |  |  |
| 15 | 7.1, 7.2 | Sampling and Sampling Distributions |  |  |
| 16 | Review | Review material |  |  |