Course Learning Outcomes Checklist

☐ The list of course learning outcomes does not equate to a list of chapter topics; outcomes are a short list of essential, summative or aggregated items (though they might relate to division titles).

☐ Outcome statements focus is on what student can do when course is completed (the critical “take-aways”), not how you will teach, what you will offer or what they might experience or do during the course.

☐ Outcome statement has a noun reflecting a specific knowledge, skill or behavior/attitude.

☐ Outcome statement uses active verbs consistent with levels in Bloom’s taxonomy that can be measured with a scored task or rating – usually more than one way. (See www.cmu.edu/teaching/resources/Teaching/CourseDesign/Objectives/BloomsTaxonomyVerbs.pdf)

☐ Outcome statement includes adjectives or adverbs describing depth or breadth of expectation.

☐ Outcomes must be clear to someone unfamiliar with the course content, i.e. student entering the course.

☐ Syllabus or outcome statement identifies how the learning will be assessed/measured (if it’s important enough to be a course outcome, then it’s important enough to have an assignment, presentation, lab, paper, test, etc.)

Summary and Use of Course Outcomes Data

☐ During the course, students can see the connection between the course outcomes and scored activities.

☐ When grading or rating the identified measure, both you and the student know the criteria; ideally, a rubric or descriptive scale is used to assess the criteria.

☐ Scores are collected for each identified measures; data now exists to appraise each outcome.

☐ Thresholds used are percentage distributions, rather than averages, to give a clearer picture of learning.

☐ Appraisal of learning compares desired thresholds against actual data for each outcome; this includes student preparedness and initiative as well as content, teaching methods and assessment measures.
Faculty Professional Development
Creating and Measuring Course Objectives

Choice of Dates:  Friday Dec. 14, 10 AM-12 PM; Charcoal Room, UC
                  Tuesday Jan. 8, 10 AM-12 PM; Cadillac Room, UC

Facilitators:    KC Holder, Academic Assessment Coordinator
                  Sandi Poindexter, AQIP Accreditation and Assessment Coordinator

Workshop Description:
This hands-on activity workshop applies course learning outcomes concepts presented in the pre-
workshop material to your NMU Winter ’13 course syllabi and plans. It is neither a lecture nor a forum
to debate the necessity for assessment of learning. Resources are at www.nmu.edu/aqip/node/9.

Pre-Workshop Activities (Prerequisites):
In lieu of lecture, attendees are expected to watch the following Kent State videos at
www.kent.edu/fpdc/learning-and-teaching/learning-outcomes/index.cfm fundamentals:
  1. Learning Outcomes Module 1- An Overview of the Process (7 min)
     (key content is repeated in next module)
  2. Learning Outcomes Module 2- Creating Learning Outcomes at the Course Level (13 min)
  3. Learning Outcomes Module 3- Writing Quality Learning Outcomes (13 min)
  4. Learning Outcomes Module 4-Evaluating a Learning Outcome (14 min)

To have enough time to complete the workshop exercises, attendees should draft one course learning
outcome for one W’13 course using the worksheet at
www.unf.edu/groups/unffa/APCWorkflowSystem/Writing_Measureable_Learning_Objectives.html

Learning Outcomes:
• Attendees can contrast the terms “learning outcomes” and “course topics”
• Attendees can locate online samples of learning outcomes for courses they teach in W’13.
• As models for the remainder of their syllabi and based upon the pre-workshop materials,
  attendees will write two acceptable-level course learning outcomes for W’13 courses.
• Attendees will identify a means of verifying both learning outcomes using the Kent State worksheet
• As a way of evaluating their understanding of a well-written learning outcome, attendees will try
  critiquing a learning outcome written by another attendee using a Kent State rubric,
  www.kent.edu/fpdc/learning-and-teaching/learning-outcomes/upload/rubric-for-outcomes-in-
  video.pdf.

What to Bring
• Two syllabi for W’13 courses
• Draft learning outcome from pre-workshop
• Computer to download or reference handouts and search for discipline samples.

Workshop Format
The workshop will be two hours in an informal setting at round tables. Coffee/tea will be available. At
each table, four attendees and one mentor will work on the activities. If possible, table groupings will be
based on similar types of courses so attendees can help each other.
Examples of Learning Objectives in Course Syllabus
There are three styles offered here; choose one that suits your course and customize to fit.

**Style 1: Measurement is not directly tied to each objective**

Describe relevance of the course. Upon successful completion of this course, a student should be able to:

- [verb] [adjective] [ability/skill]
- [verb] [adjective] [ability/skill]

Evaluation of these learning outcomes will be done through a mix of [assignments, class exercises, labs, projects, research papers, group work, quizzes, tests, etc.]

Example:
This is the first course taken by CIS majors and minors and forms the foundation for later courses. Upon successful completion of this course, a student should be able to:

- Use the basic terminology associated with computer systems
- Define a computer, list the basic types of computers and identify the major parts of a computer
- Use the Windows operating system to effectively configure, troubleshoot and maintain a personal computer
- Discuss the effects of computers on society and associated ethical issues
- Locate and analyze technology news

Evaluation of these learning outcomes will be done through assignments, class discussion, exams, lab exercises and summary reports.

**Style 2: Measurement is tied to each objective in tabular format**

Example:
Upon successful completion of this course, a student should be able to:

<table>
<thead>
<tr>
<th>Expected Ability / Skill to be Learned</th>
<th>As evidenced / measured by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the basic terminology associated with computer systems</td>
<td>Assignments, class discussion, exams</td>
</tr>
<tr>
<td>List the basic types of computers and identify the major parts of a computer</td>
<td>Assignments, exams</td>
</tr>
<tr>
<td>Use the Windows operating system to effectively configure, troubleshoot and maintain a personal computer</td>
<td>Lab exercises</td>
</tr>
<tr>
<td>Discuss the effects of computers on society and associated ethical issues</td>
<td>Video and written essay</td>
</tr>
<tr>
<td>Locate and analyze technology news</td>
<td>Short summary reports</td>
</tr>
</tbody>
</table>

**Style 3: Measurement is embedded within each objective**

By the end of this course, students will:

- [verb] [ability/skill] at the [proficiency level] by [means of assessment/evidence]

Examples:

- Recognize in exams, and appropriately use in assignments, a working technology vocabulary that bridges the gap between non-technology end users and technology support staff.
- Examine multiple alternatives and recommend an effective solution that reflects on the ethical and social issues within a case study scenario.
If you want your students to demonstrate their **knowledge**, use these verbs:

<table>
<thead>
<tr>
<th>Define</th>
<th>Repeat</th>
<th>List</th>
<th>Record</th>
<th>Distinguish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall</td>
<td>Name</td>
<td>State</td>
<td>Relate</td>
<td>Label</td>
</tr>
</tbody>
</table>

If you want your students to demonstrate their **ability to comprehend**, use these verbs:

<table>
<thead>
<tr>
<th>Translate</th>
<th>Restate</th>
<th>Describe</th>
<th>Tell</th>
<th>Illustrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognize</td>
<td>Locate</td>
<td>Identify</td>
<td>Express</td>
<td>Represent</td>
</tr>
<tr>
<td>Report</td>
<td>Review</td>
<td>Extrapolate</td>
<td>Convert</td>
<td>Formulate</td>
</tr>
<tr>
<td>Interpret</td>
<td>Transform</td>
<td>Select</td>
<td>Indicate</td>
<td>Classify</td>
</tr>
</tbody>
</table>

If you want your students to demonstrate their **ability to apply knowledge**, use these verbs:

<table>
<thead>
<tr>
<th>Interpret</th>
<th>Employ</th>
<th>Apply</th>
<th>Use</th>
<th>Predict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dramatize</td>
<td>Demonstrate</td>
<td>Practice</td>
<td>Illustrate</td>
<td>Implement</td>
</tr>
<tr>
<td>Schedule</td>
<td>Operate</td>
<td>Sequence</td>
<td>Solve</td>
<td>Show</td>
</tr>
<tr>
<td>Prepare</td>
<td>Generalize</td>
<td>Plan</td>
<td>Explain</td>
<td>Complete</td>
</tr>
<tr>
<td>Underline</td>
<td>Identify</td>
<td>Recognize</td>
<td>Reproduce</td>
<td>Order</td>
</tr>
</tbody>
</table>

If you want your students to demonstrate their **ability to analyze**, use these verbs:

<table>
<thead>
<tr>
<th>Distinguish</th>
<th>Test</th>
<th>Analyze</th>
<th>Compare</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiate</td>
<td>Contrast</td>
<td>Appraise</td>
<td>Criticize</td>
<td>Determine</td>
</tr>
<tr>
<td>Calculate</td>
<td>Diagram</td>
<td>Experiment</td>
<td>Inspect</td>
<td>Dissect</td>
</tr>
<tr>
<td>Question</td>
<td>Debate</td>
<td>Relate</td>
<td>Inventory</td>
<td>Catalog</td>
</tr>
<tr>
<td>Solve</td>
<td>Examine</td>
<td>Categorize</td>
<td>Estimate</td>
<td>Classify</td>
</tr>
<tr>
<td>Detect</td>
<td>Discriminate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you want your students to demonstrate their **ability to synthesize**, use these verbs:

<table>
<thead>
<tr>
<th>Compose</th>
<th>Arrange</th>
<th>Plan</th>
<th>Discuss</th>
<th>Generalize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propose</td>
<td>Collect</td>
<td>Design</td>
<td>Construct</td>
<td>Modify</td>
</tr>
<tr>
<td>Formulate</td>
<td>Create</td>
<td>Manage</td>
<td>Set up</td>
<td>Improvise</td>
</tr>
<tr>
<td>Write</td>
<td>Integrate</td>
<td>Specify</td>
<td>Produce</td>
<td>Conclude</td>
</tr>
<tr>
<td>Organize</td>
<td>Theorize</td>
<td>Design</td>
<td>Build</td>
<td>Relate</td>
</tr>
<tr>
<td>Systematize</td>
<td>Combine</td>
<td>Summarize</td>
<td>Argue</td>
<td>Derive</td>
</tr>
</tbody>
</table>

If you want your students to demonstrate their **ability to evaluate**, use these verbs:

<table>
<thead>
<tr>
<th>Judge</th>
<th>Value</th>
<th>Appraise</th>
<th>Weigh</th>
<th>Conclude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate</td>
<td>Score</td>
<td>Rate</td>
<td>Select</td>
<td>Support</td>
</tr>
<tr>
<td>Check</td>
<td>Choose</td>
<td>Justify</td>
<td>Assess</td>
<td>Criticize</td>
</tr>
<tr>
<td>Measure</td>
<td>Verify</td>
<td>Test</td>
<td>Rank</td>
<td>Defend</td>
</tr>
</tbody>
</table>
How the Taxonomy Promotes Active Learning

Clark (2002) provided an adaptation of Bloom’s work to facilitate active learning. Although originally the tool was developed by a class of teachers for use in curriculum building in the high school level, the suggestions would work for college level classes as well. The inner ring contains the original levels of Bloom’s taxonomy. The middle ring offers synonyms for the various academic processes that comprise that taxonomic level. The outer ring links process to product. For example, if you wanted to increase application skills, you might ask students to construct diagrams of the key concepts involved in the content of the class. If you wish to improve evaluation skills, you might ask students to produce an editorial for the student newspaper in which they discuss the strengths and weaknesses of a particular side of a controversial issue. We have modernized the language of the original circle to reflect the latest version of Bloom’s Taxonomy.

Cognitive Taxonomy Circle

Based on:
Excerpted, with permission, from Kent State University available at //www.kent.edu/fpdc/learning-and-teaching/learning-outcomes/upload/mod2-3-2.pdf

Learning Outcomes Module Two Course Level

B. Course Experiences to Achieve Learning
   1. Case Study Group Work
   2. Teacher Mini-Lecture on Student Findings

A. What Students Must Learn
   The types of licenses and the process associated with becoming a teacher in Ohio

R. Assessment Strategy
   1. Monitor Classroom and Group Discussion (in-class and online)
   2. Case Study Individual Analysis Paper

C. Learning Outcome
   Through the individual case study analysis paper, students will compare and contrast the specific types of Ohio educator licenses and the processes associated with obtaining each type.

Start Here

End Here

Faculty Professional Development Center
Test/Exams

Normally tests are used to assess determine an individual student’s grade, but it can also be used to assess how well the students can perform the course objectives IF:

- The questions on the comprehensive examination are linked to the course objectives
- Review of the results is based on correct responses to each of the questions vs. individual student performance.

For example:

✓ An instructor builds a comprehensive final.
✓ While building it, (s)he writes questions 1-5 so they are related to Course Objective #1 and questions 6-10 are related to Course Objective #2, etc.
✓ Generally upon completion of the course, the instructor reports individual grades and notes that 80% of the students pass with a 70% or better. That is great, BUT it doesn’t tell you how well the students can meet the course objectives.
✓ To use the test for assessment reporting purposes, the instructor needs to review how many of the students correctly answered Questions 1-5 to determine how well they can perform Objective #1, questions 6-10 how well they can perform Objective #2, etc. The instructor may now find that although 80% of the students passed the course – only 30% understand/can apply concepts of Objective #1.
Assessment Tools

Assessment Tools

Below are links to assessment tools and techniques along with specific geoscience examples and resources.

- **Concept Maps** - A diagramming technique for assessing how well students see the "big picture".
- **Concept Tests** - Conceptual multiple-choice questions that are useful in large classes.
- **Knowledge Survey** - Students answer whether they could answer a survey of course content questions.
- **Exams** - Find tips on how to make exams better assessment instruments.
- **Oral Presentations** - Tips for evaluating student presentations.
- **Poster Presentations** - Tips for evaluating poster presentations.
- **Peer Review** - Having students assess themselves and each other.
- **Portfolios** - A collection of evidence to demonstrate mastery of a given set of concepts.
- **Rubrics** - A set of evaluation criteria based on learning goals and student performance.
- **Written Reports** - Tips for assessing written reports.
- **Other Assessment Types** - Includes concept sketches, case studies, seminar-style courses, mathematical thinking and performance assessments.

Topics Of Particular Interest

- **Large Class Assessment** - Learn more about assessment strategies that are particularly useful for large classes and see examples of how techniques were employed in geoscience classes.
- **Using Technology** - Learn more about how technology can improve classroom assessment and see how techniques were employed in geoscience classes.

Don't Know Which Tool to Use? Look Through our Introductory Resources

- **Primer on Assessment in the Geosciences** is an in depth introduction to assessment created for faculty teaching introductory courses.
- **DLESE Evaluation Toolkit** (more info) aims to help geoscience educators and project evaluators find good resources, get feedback and help with geoscience education evaluation, and share results with one another.
- **Evaluation Cookbook** (more info) is a basic guide to evaluation methods for lecturers in a cookbook format.
- **OERL: Online Evaluation Resource Library** website designed for professionals working on project evaluations.
- **The Center for Technology in Learning** at SRI International has conducted a number of projects creating assessment designs and examples for middle and high school students that are relevant to the geosciences, including:
  - **PALS** (more info) is an on-line, standards-based, continually updated resource bank of science performance assessment tasks indexed via the National Science Education Standards (NSES) and various other standards frameworks.
  - **PALM** is currently being developed as an on-line, standards-based, resource bank of mathematics performance assessment tasks indexed via the National Council of Teachers of Mathematics (NCTM).
  - **Integrative Performance Assessments in Technology (IPAT)** is a site developed for middle or high school teachers, school administrators, or evaluators who are interested in assessing how proficient students are using computer-based technology to carry
Classroom Assessment Techniques (CATs) - Overview

The Classroom Assessment Techniques -- CATs (Angelo and Cross, 1993) within the FLAG are succinct, self-contained, self-instructional, web-based modules that introduce a broadly applicable technique for use in college or university STEM courses. Each CAT has been written by a college or university instructor who currently uses the technique, and has been reviewed by the FLAG Editorial Board for accuracy and consistency with current professional standards of assessment. In most cases, the technique has an extensive history of research to support claims of reliability and validity. The CATs are linked to a set of discipline-specific "tools" that can be downloaded for immediate use.

Each CAT is composed of a set of common features:

- **Focus Questions**: Overview of strategy; general requirements and limitations of implementation.
- **Description**: Succint but thorough introduction.
- **Purposes**: Indications of appropriate usage.
- **Limitations**: Contra-indications and potential problems.
- **Teaching Goals**: List of course goals addressed by the strategy.
- **Suggestions for Use**: Friendly "Tips" from an experienced user.
- **Step-by-Step**: Explicit directions for implementation.
- **Variations**: Alternative uses and elaborations.
- **Analysis**: Making sense of the data; uses in evaluation.
- **Pros and Cons**: Advantages and disadvantages.
- **Theory and Research**: Conceptual and empirical foundations.
- **Links**: URLs or email addresses of CAT authors for direct contact by users.
- **Sources**: Books, papers, related web-sites.
- **Author's Story**: Personalized description of author and how (s)he came to use strategy.
Matching Goals to CATs

To find appropriate CAT(s) use the Student Learning Outcomes table below.

1. Reflect on your own course goals.
2. Identify the goals within the list that most closely approximate your own (5 or 6 goals is adequate).
3. Click the check boxes next to those goals.
4. Click the "Submit" button.

A chart of the goals and corresponding CAT(s) will be made which can be printed out.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Classroom Assessment Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>AS  CT  CM  CD  IN  PA  PO  SR  WR</td>
</tr>
<tr>
<td>Demonstrates basic knowledge of facts and terms</td>
<td>☑     X     X     X     ☑     X     X</td>
</tr>
<tr>
<td>Demonstrates basic knowledge of concepts and theories</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
<tr>
<td>Demonstrates synthesis and integration of information and ideas</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
<tr>
<td>Develops skill in using materials, tools and technology central to subject</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
<tr>
<td>Learns techniques and methods used to gain new knowledge in subject</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
<tr>
<td>Learns to evaluate methods and materials of this subject</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
<tr>
<td>Learns modeling methods appropriate for subject</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
<tr>
<td>Learns to appreciate important contributions of this subject</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
<tr>
<td>Develops an informed understanding of the role of science and technology</td>
<td>☑     X     ☑     ☑     X     X     X</td>
</tr>
</tbody>
</table>

Skills

<table>
<thead>
<tr>
<th>Analytical Skills</th>
<th>AS  CT  CM  CD  IN  PA  PO  SR  WR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzes problems from different points of view</td>
<td>☑     X     X     X     X     X     X</td>
</tr>
<tr>
<td>Recognizes interrelationships among problems and issues</td>
<td>☑     X     X     X     X     X     X</td>
</tr>
<tr>
<td>Analyzes and interprets experimental data effectively</td>
<td>☑     X     X     X     X     X     X</td>
</tr>
<tr>
<td>Applies principles and generalizations to new problems and situations</td>
<td>☑     X     X     X     X     X     X</td>
</tr>
<tr>
<td>Organizes information into meaningful categories</td>
<td>☑     X     X     X     X     X     X</td>
</tr>
</tbody>
</table>
Scoring Rubrics

Diane Ebert-May ebertmay@pilot.msu.edu
Lyman Briggs School, Department of Botany and Plant Pathology
Michigan State University

WHY USE RUBRICS?
Has a student ever said to you regarding an assignment, “But, I didn’t know what you wanted!” or “Why did her paper get an ‘A’ and mine a ‘C’?” Students must understand the goals we expect them to achieve in course assignments, and importantly, the criteria we use to determine how well they have achieved those goals. Rubrics provide a readily accessible way of communicating and developing our goals with students and the criteria we use to discern how well students have reached them.

WHAT IS A RUBRIC?
Rubrics (or “scoring tools”) are a way of describing evaluation criteria (or “grading standards”) based on the expected outcomes and performances of students. Typically, rubrics are used in scoring or grading written assignments or oral presentations; however, they may be used to score any form of student performance. Each rubric consists of a set of scoring criteria and point values associated with these criteria. In most rubrics the criteria are grouped into categories so the instructor and the student can discriminate among the categories by level of performance. In classroom use, the rubric provides an “objective” external standard against which student performance may be compared.

Step-by-Step Instructions (from goals to ratings)

There are many routes to developing a useful scoring rubric, however, all of them involve the following five steps:

1. I developed the goals for my course and daily class meetings. Keep in mind the assessment tasks must be linked to student learning goals and outcomes. So writing goals is the first step. These are examples of stems and sample goals from introductory ecology or biology courses:

   Students will be able to demonstrate their ability to:
   • utilize science as a process
   • communicate an understanding of and links among biological principles
   • write about, criticize and analyze concepts in biology
   • use the process of scientific inquiry to think creatively and formulate questions about real-world problems
   • apply content knowledge in the resolution of real-world problems
   • reason logically and critically to evaluate information
   • argue science persuasively (in both written and oral format)
   • illustrate the relevance of ecology to your lives by applying ecological knowledge in the resolution of real-world problems
2. I selected the assessment tasks.

What type of assessment will provide me data about students’ achievement of each of these goals?

Based on the goals for my courses, I selected different forms of extended responses, both written and oral, and concept maps to gather the data that would convince me that my students achieved the goals. The kinds of questions I asked students and the types of projects I assigned, were designed to promote students’ reasoning. For example, for the first three goals I have listed, various types of assessment that could be used to gather the type of data desired.

- Utilize science -- performance assessment e.g., students conduct a scientific investigation
- Communicate an understanding of and links among biological principles -- e.g., concept maps, Vee diagrams, extended written responses (Novak and Gowin 1984, Novak 1998).
- Write about, criticize and analyze concepts in biology -- written critical analysis of articles and papers.

3. I developed a set of performance standards.

The performance standards I used in my introductory biology course on “logical reasoning” and “critically evaluating information” were different than the performance standards I developed for my upper division biology majors. The difference was based on the developmental stages of the students and their experience in college-level science courses (Magolda 1992, King and Kitchener 1994).

4. I differentiated performances based on criteria.

Examine the rubric for Quizzes and Homework. The criteria for responses fall into two major categories: general approach and comprehension. Although these two categories are not discrete as indicated by the dotted line between them, students can see all of the itemized components of an exemplary answer. These categories can be divided further. For example, comprehension could be divided into content knowledge, conceptual understanding, and reasoning and critical thinking skills (Freeman 1994). Freeman (1994) includes communication skills as a category in rubrics. Essentially, my rubrics cover the same categories; the difference is in the number of columns used.

Notice, when it is possible to quantify the categories, I did so. So, for example, the criteria for acceptable style and grammar in an exemplary answer is based on no errors.

Our ability to differentiate among criteria is critical to the effectiveness of the scoring rubric. So words like “good” are too subjective. The criteria must be designed so that you and your students can discriminate among the qualities you consider important.

When we evaluate students’ extended responses, we tend not to score them point by point, however, by elaborating on the criteria that comprise the different levels of performance, we provide the students substantive guidance about what should be included in their extended responses.

5. I assigned ratings (or weights) to the categories.

- Exemplary (5 pts) - highest category of college-level work
- Adequate (4 or 3 pts) - acceptable college-level work
- Needs Improvement (3 or 1 pts) - not yet college level-work
- No answer: 0 points
Point values: Do you assign points on a 5, 3, 1 scale? or a 5, 4, 3 scale? I have tried both. I chose 3 as the middle or as an adequate score. Most student responses in this category can readily be improved through group work, practice, effort and instruction. Therefore, in an effort to develop students’ self-efficacy and to promote their achievement of higher standards, I chose the 5, 4, 3 point scheme.

On a five-point scale, the data do not enable me to discriminate between two consecutive points, such as 3 and 4, in terms of evaluating the response. Rather, three categories were readily distinguishable by my students and me, therefore, little if any time was spent “arguing” for points. The criteria for evaluation were clear and understood.

<table>
<thead>
<tr>
<th>Example 1. Scoring Rubric for Quizzes and Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Achievement</strong></td>
</tr>
</tbody>
</table>
| Exemplary (5 pts quizzes) | • Addresses the question.  
• States a relevant, justifiable answer.  
• Presents arguments in a logical order.  
• Uses acceptable style and grammar (no errors). | • Demonstrates an accurate and complete understanding of the question.  
• Backs conclusions with data and warrants.  
• Uses 2 or more ideas, examples and/or arguments that support the answer. |
| Adequate (4 pts quizzes) | • Does not address the question explicitly, although does so tangentially.  
• States a relevant and justifiable answer.  
• Presents arguments in a logical order.  
• Uses acceptable style and grammar (one error). | • Demonstrates accurate but only adequate understanding of question because does not back conclusions with warrants and data.  
• Uses only one idea to support the answer.  
• Less thorough than above. |
| Needs Improvement (3 pts quizzes) | • Does not address the question.  
• States no relevant answers.  
• Indicates misconceptions.  
• Is not clearly or logically organized.  
• Fails to use acceptable style and grammar (two or more errors). | • Does not demonstrate accurate understanding of the question.  
• Does not provide evidence to support their answer to the question. |
| No Answer (0 pts) | | |

<table>
<thead>
<tr>
<th>Example 3. Scoring Rubric for Essay Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Achievement</strong></td>
</tr>
</tbody>
</table>
| Exemplary (10 pts) | • Provides a clear and thorough introduction and background  
• Addresses the question  
• Addresses the question  
• Presents arguments in a logical order  
• Uses acceptable style and grammar (no errors) | • Demonstrates an accurate and complete understanding of the question  
• Uses several arguments and backs arguments with examples, data that support the conclusion |
| Quality (8 pts) | • Combination of above traits, but less consistently represented (1-2 errors)  
• Same as above but less thorough, still accurate | • Uses only one argument and example that supports conclusion |
| Adequate (6 pts) | • Does not address the question explicitly, though does so tangentially  
• States a somewhat relevant argument  
• Presents some arguments in a logical order  
• Uses adequate style and grammar (more than 2 errors) | • Demonstrates minimal understanding of question, still accurate  
• Uses a small subset of possible ideas for support of the argument. |
| Needs improvement (4 pts) | • Does not address the question  
• States no relevant arguments  
• Is not clearly or logically organized  
• Fails to use acceptable style and grammar | • Does not demonstrate understanding of the question, inaccurate  
• Does not provide evidence to support response to the question |
| No Answer (0 pts) | | |
### Example 2. Scoring Rubric for Grant Proposals (35 points possible)

<table>
<thead>
<tr>
<th>Level of Achievement</th>
<th>General Presentation (10 points possible)</th>
<th>Conceptual Understanding (10 points possible)</th>
<th>Argument Structure (10 points possible)</th>
<th>Use of literature and pertinent resources (5 points possible)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exemplary</strong></td>
<td>• (10 pts.) Provides a clear and thorough introduction and background. States a specific, testable research question. Provides a clear explanation of the LTER site and the proposed research. Uses a broad range of information to build and support arguments. Demonstrates the understandings of the implications of the data and/or information.</td>
<td>• (10 pts.) Demonstrates a clear understanding of the LTER site and the proposed research. Uses a broad range of information to build and support arguments. Demonstrates a good understanding of the implications of the data and/or information.</td>
<td>• (10 pts.) Provides strong, clear, convincing statements (i.e., conclusions) explaining the reasons the proposed research is important and should be funded. Provides relevant evidence to support conclusions. Provides reasons for the legitimacy of the evidence (i.e., warrants) that enable conclusions.</td>
<td>• (5 pts.) Follows proper format in providing citations. Uses data and/or information relevant to the proposed research.</td>
</tr>
<tr>
<td><strong>Adequate</strong></td>
<td>• (8 pts.) Provides an introduction and background that is somewhat significant to the experiment. States a clear, but untestable research question. Provides an adequate explanation of the proposed research methods. Shows some effort to present the rationale and significance of the proposed research in the form of a well-structured argument. Uses adequate style and grammar (1-2 errors).</td>
<td>• (8 pts.) Demonstrates a partial understanding of the LTER site and the proposed research. Uses information from only 2 or 3 sources to build and support arguments. Demonstrates a partial understanding of the implications of the data and/or information.</td>
<td>• (8 pts.) Provides statements (i.e., conclusions) explaining the reasons the proposed research is important and should be funded, but weak evidence to support conclusions and no warrants.</td>
<td>• (4 pts.) Follows proper format in providing citations, but not consistently throughout the proposal. Uses limited number of sources of data and/or information relevant to the proposed research.</td>
</tr>
<tr>
<td><strong>Needs Improvement</strong></td>
<td>• (6 pts.) Provides an introduction and background that is insignificant to the experiment. States a vague, untestable research question. Provides an unorganized explanation of the proposed research methods. Presents rationale and significance of the proposed research in the form of a weak, unstructured argument. Fails to use acceptable style and grammar (&gt;2 errors).</td>
<td>• (6 pts.) Does not demonstrate an understanding of the LTER site and the proposed research. Uses less than two sources to build and support arguments. Does not appear to understand the implications of the data and/or information.</td>
<td>• (6 pts.) Provides statements (i.e., conclusions) explaining the reasons the proposed research is important and should be funded, but no evidence to support conclusions and no warrants.</td>
<td>• (3 pts.) Does not follow proper format in providing citations.</td>
</tr>
</tbody>
</table>

**Exemplary**
- Provides a clear and thorough introduction and background
- States a specific, testable research question
- Provides a clear explanation of the LTER site and the proposed research
- Uses a broad range of information to build and support arguments
- Demonstrates the understandings of the implications of the data and/or information

**Adequate**
- Provides an introduction and background that is somewhat significant to the experiment
- States a clear, but untestable research question
- Provides an adequate explanation of the proposed research methods
- Shows some effort to present the rationale and significance of the proposed research in the form of a well-structured argument
- Uses adequate style and grammar (1-2 errors)

**Needs Improvement**
- Provides an introduction and background that is insignificant to the experiment
- States a vague, untestable research question
- Provides an unorganized explanation of the proposed research methods
- Presents rationale and significance of the proposed research in the form of a weak, unstructured argument
- Fails to use acceptable style and grammar (>2 errors)
VALUE: Valid Assessment of Learning in Undergraduate Education

To download the VALUE Rubrics:

Enter your email & click submit. [First-time visitors will be asked to provide some brief information before accessing the VALUE Rubrics.]

Enter an Email Address:

Submit

As part of the VALUE project, diverse teams of faculty and other academic and student affairs professionals from a wide range of institutions drafted and revised institutional-level rubrics (and related materials) to correspond with the AAC&U Essential Learning Outcomes. Each VALUE rubric (listed below) contains the most broadly shared criteria or core characteristics considered to be critical for judging the quality of student work in a particular outcome area.

VALUE Rubrics:

Intellectual and Practical Skills

- Inquiry and analysis
- Critical thinking
- Creative thinking
- Written communication
- Oral communication
- Reading
- Quantitative literacy
- Information literacy
- Teamwork
- Problem solving

Personal and Social Responsibility

- Civic knowledge and engagement—local and global
- Intercultural knowledge and competence
- Ethical reasoning
- Foundations and skills for lifelong learning

Integrative and Applied Learning

- Integrative and applied learning

See Acceptable Use and Reprint Permissions for information about permitted commercial or educational use of VALUE Rubrics. Questions or comments may be directed to: value@aacu.org.
### Rubric to evaluate quality of a learning outcome statement

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Excellent</th>
<th>Acceptable</th>
<th>Need Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clear Expectations</strong> <em>(Students will understand what is expected)</em></td>
<td>Each outcome outlines expectations that would be very clear to all students.</td>
<td>Most of the outcomes outline expectations that would be clear to most students.</td>
<td>The outcome would not be clear to the students. There are various elements within the outcome that are ambiguous and need to be re-worked.</td>
</tr>
<tr>
<td><strong>Meaningful Outcomes</strong> <em>(These are outcomes worth pursuing in this course)</em></td>
<td>The outcomes are clearly connected to the overall goals of the course and the mission of the university.</td>
<td>The outcomes reflect most of the stated goals of the course.</td>
<td>The outcomes do not reflect the stated goals of the course.</td>
</tr>
<tr>
<td><strong>Verifiable</strong> <em>(I'll be able to tell when students have achieved the outcome)</em></td>
<td>The outcomes are linked to assessment activities with clear criteria that represent a sophisticated understanding of the progression of human learning.</td>
<td>The outcomes are linked to assessment activities with clear criteria.</td>
<td>The outcomes are not linked to assessment activities.</td>
</tr>
<tr>
<td><strong>Student Actions</strong> <em>(The outcomes recognize an education is more than just memorizing disconnected data)</em></td>
<td>The learning outcomes reflect appropriate levels of thinking, feeling, and doing using appropriate verbs</td>
<td>The learning outcomes reflect various levels of thinking, feeling, and doing. Verb and levels may disagree in a few places.</td>
<td>The learning outcomes need to be reconsidered for higher levels learning.</td>
</tr>
</tbody>
</table>