Georgia Tech | Center for Serve-Learn-Sustain

SLS Learning Outcomes

Develop Skills & Knowledge
- Students will be able to identify relationships among ecological, social, and economic systems.
- Students will be able to describe how their actions impact the sustainability of communities.
- Students will be able to demonstrate skills needed to work effectively in a community.
- Students will be able to evaluate how decisions impact the sustainability of communities.

Connect to Professional Practice
- Students will be able to describe how they can use their discipline to make communities more sustainable.

Putting Skills & Knowledge into Action
- Students will be able to develop approaches to sustainability challenges in communities.
- Students will be able to communicate effectively with the public about creating sustainable communities.

Build Long-Lasting Values and Beliefs
- Students will develop and manifest personal values and beliefs consistent with their roles as responsible members of local, national, international, and/or professional communities.

ACTIVE VERBS for LEARNING OUTCOME STATEMENTS – **Bloom's Taxonomy**

The action verbs below are considered measurable and suitable for use in the development of student learning and program outcome statements. Using these action verbs will help assure that the outcomes can be measured. The categories presented below proceed from the simplest forms of knowing to the most complex forms. Use these verbs when writing your outcome statements.

I.   Knowledge

Verbs: define, identify, label, list, name, state, match, recognize, locate, memorize, quote, recall, reproduce, tabulate, tell, copy, discover, duplicate, enumerate, listen, observe, omit, read, recite, record, repeat, retell, visualize

II.   Comprehension [or understanding] of new material

Verb	Appropriate testing/ **measurement of learning**
Classify	Sort a random list into appropriate groups
Describe	Write or orally describe a phenomenon or concept
Discuss	Write or orally discuss a phenomenon or concept
Explain	Write or orally explain a phenomenon or concept
Express	Choose appropriate language or symbols to express a concept (e.g. write a poem or paint a picture evoking sadness)
Identify	Choose an appropriate answer in a multiple choice test
Indicate	Choose an appropriate answer in a multiple choice test
Locate	Pinpoint a site on a map or label a diagram (e.g., skeleton)
Restate	Re-write or explain a concept in their own words
Review	Present a summary

Paraphrase, summarize, extend, associate, convert, infer, translate, ask, cite, discover, generalize, give examples, group, observe, order, report, represent, rewrite, show, trace, transform

III.   Application of new knowledge or skills

Verb	Appropriate testing/ **measurement of learning**
Apply	Use knowledge to accomplish a task
Calculate	Use mathematical reasoning to determine a quantity, etc.
Dramatize	Use role-playing to illustrate a concept
Illustrate	Use drawings to explain, show a process, etc.
Practice	Use knowledge to follow established procedures and refine a skill
Schedule	Use knowledge to develop a timeline and plan to accomplish a task
Use	Employ tools and techniques appropriately

Modify, change, choose, discover, experiment, sketch, complete, interpret, manipulate, paint, prepare, teach, act, administer, articulate, chart, collect, compute, determine, develop, employ, establish, interview, judge, operate, schedule, simulate, transfer, write

IV.   Analyze (part of critical thinking)

Verb	Appropriate testing/ **measurement of learning**

Analyze......................Describe parts, organization, functions – such as a process
Categorize.................Place items in appropriate general groups based on similarities
Compare....................Identify the similarities between 2 or more items, concepts, etc.
Examine.....................Methodically scrutinize something to determine facts
Experiment, test.........Try out something to determine an unknown or whether something is effective
Differentiate...............Show how 2 or more items are dissimilar and distinct
Plan...........................Write/describe a procedure to accomplish a goal before beginning it
Solve.........................Use mathematical or scientific reasoning to determine an unknown

Compare, distinguish, separate, select, connect, discriminate, divide, point out, prioritize, subdivide, divide, survey, advertise, break down, correlate, deduce, devise, diagram, dissect, focus, illustrate, question

V.   Evaluation of concepts, alternatives (part of critical thinking)

Verb	Appropriate testing/ **measurement of learning**
Appraise, Assess.......	Describe and judge the value or quality of something based on reasoning
Evaluate, Judge, Critique....................	Describe the relative merits of something based on criteria
Rate, Score................	Assign a numeric value or ranking that indicates quality
Choose, Select Best..	Use established criteria to identify the optimal alternative from good options
Argue........................	Describe reasons and present evidence for a point of view (written exam question)
Estimate....................	Present a general calculation or anticipated cost or effect of something

Reframe, criticize, support, decide, recommend, convince, defend, find errors, grade, measure, predict, rank, test, conclude, critique, editorialize, justify, persuade, weigh

VI.   Create (part of critical thinking)

Verb	Appropriate testing/ **measurement of learning**
Formulate..................	Express [oral, written] in a systematic way a theory or plan
Compose, Design......	Create an artifact (picture, poem, music, etc.) in order to communicate
Arrange, Organize.....	Write a detailed plan/ arrangement to manage a problem
Propose....................	Present a written plan with rational and arguments for its adoption

Hypothesize, substitute, construct, invent, integrate, produce, role-play, anticipate, adapt, assemble, collaborate, facilitate, imagine, intervene, manage, negotiate, originate, schematize, speculate, validate, structure

Backward Design Template

Stage 1—Desired Results
Established Goal(s):   **Established SLO(s):**

Understandings: Students will understand that…	**Essential Questions:**

Students will know …	*Student will be able to…*

Stage 2—Assessment Evidence

Performance Tasks:	**Other Evidence**

Stage 3—Learning Plan
Learning Activities:

Backward Design Template

Stage 1—Desired Results

Established Goal(s): Develop Knowledge and Skills
Established SLO(s): Students will be able to identify relationships among ecological, social, and economic systems
Topic: The social and environmental or economic impact of electromagnetics on the broader society

Understandings:	Essential Questions:
Students will understand …	What are the pillars of sustainability?
	How are ecological, social, and economic systems related?
1. Three pillars of sustainability	
2. The interrelationship of the three sustainability pillars	

Students will know …	*Student will be able to…*
Students will be able to describe...	
Students will be able to identify...	
Students will be able to explain ...	

Stage 2—Assessment Evidence

Performance Tasks:	Other Evidence
Create a 4-minute Ted Talk tied to one of the three pillars of sustainability	• Oral or written response to one of the Essential questions
	• Test/quiz on sustainability pillars
Create a poster presentation of the topic	

Stage 3—Learning Plan

Learning Activities:

Review the scoring rubrics for the Ted Talk and Poster presentations before students begin the performance tasks
Assign reading assignment

Backwards Design (Wiggins and McTighe 1998): An approach to designing your course where you begin with the end, that is your **learning goals**, in mind. Then you decide how you will **assess** whether your students have met those goals. Finally you decide how you will build it into your course and what **learning activities** will help prepare students to be successful in achieving their goals. Learning goals, assessments, and activities should be **aligned** and support each other.
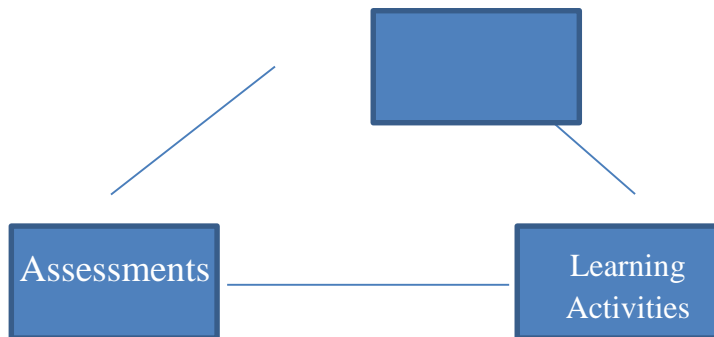
Advantages of Using Backwards Design:

- Outcome goals are embedded throughout the course
- The outcomes define the skills embedded in homework, projects, exams
- The process helps distill the "huge content" problem. Cutting content is often painful but working backwards establishes priorities.

What is one thing that you want students in your Serve Learn Sustain course to be able to do upon completing your class? (Hint: Avoid setting an unobservable goal like "understand." Instead, precisely define how you will be able to know that students understand, e.g. describe, design, compare and contrast, etc.)

How will you know if your students have been successful in achieving the goal you identified above?

How will you incorporate this goal into your class? What learning activities will support students in achieving this goal?

CAE UROP Oral Presentation Rubric

Score Levels	Language	Visual Aids	Organization	Delivery
4	• Language choices are compelling and reflect thoughtful consideration for general audience consumption. • Language choices enhance effectiveness of presentation. • Technical jargon is limited and appropriately explained when used.	• A wide variety of visual aids are employed. (e.g. explanations, examples, illustrations, charts/graphs, quotes, images) • Format significantly supports the presentation and establishes presenter's credibility. • Visual aid design significantly enhances presentation.	• Organization pattern is clear and consistent. • Main research objective is skillfully presented. • Clear, observable introduction, transitions, and conclusion make the content of the presentation cohesive.	• Length of presentation is appropriate for setting and enhances presentation. • Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation compelling. • Presenter is polished and speaks confidently about the research topic. • Message is compelling, engaging, and memorable.
3	• Language choices reflect thoughtful consideration for general audience consumption. • Language choices generally enhance the effectiveness of the presentation. • Technical jargon in limited.	• A variety of visual aids are employed. (e.g. explanations, examples, illustrations, charts/graphs, quotes, images) • Format generally supports the presentation and establishes presenter's credibility. • Visual aid design generally enhances presentation.	• Organization pattern is generally clear and consistent. • Main research objective is presented. • Generally clear, observable introduction, transitions, and conclusion make the content of the presentation generally cohesive.	• Length of presentation is appropriate for setting generally enhances the presentation. • Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting. • Presenter is comfortable and speaks easily about the research topic. • Message is clear.
2	• Language choices reflect limited consideration for general audience consumption. • Language choices partially enhance the effectiveness of the presentation. • Technical jargon is overly used.	• Minimal variety of visual aids are employed. (e.g. explanations, examples, illustrations, charts/graphs, quotes, images) • Format partially supports the presentation and minimally establishes presenter's credibility. • Visual aid design partially enhances presentation.	• Organization pattern is partially clear and consistent. • Main research objective is partially presented or somewhat unclear. • Partially clear, observable introduction, transitions, and conclusion make the content of the presentation somewhat incoherent.	• Length of presentation is somewhat inappropriate for setting and partially detracts from the presentation. • Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable. • Presenter is uncomfortable and speaks with uncertainty about the research topic. • Message is somewhat clear.
1	• Language choices reflect no consideration for general audience consumption. • Language choices do not enhance the effectiveness of the presentation. • Technical jargon is excessively used.	• Insufficient variety of visual aids are employed. (e.g. explanations, examples, illustrations, charts/graphs, quotes, images) • Format minimally supports the presentation and does not establish presenter's credibility. • Visual aid design minimally enhances presentation.	• Organization pattern is unclear. • Main research objective is unclear. • Unclear, unobservable introduction, transitions, and conclusion make the content of the presentation incoherent.	• Length of presentation is inappropriate for setting and detracts from the overall presentation. • Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) detract from the presentation. • Presenter is tense and speaks with hesitation about the research topic. • Message is unclear.

Norback & Utschig Engineering and Science Oral Presentation Scoring System, Based on Executive Input
Version 6.3 05/04/16

Rater	Course/Group	Presenter	Date

I. Customizing to the audience
No | Not much | Yes, but | Yes | Wow!

Audience is considered throughout as observed through presentation details tailored to audience interests and needs

[1]First impression	1 2 3 4 5	Speaker grabs audience attention while defining purpose
[2]Relevant details	1 2 3 4 5	Uses concrete examples and details familiar to audience
[3]Appropriate language	1 2 3 4 5	Describes concepts at just the right level for particular audience

Comments:

II. Telling the story
No | Not much | Yes, but | Yes | Wow!

Displays a logical flow and interconnectedness of the different parts of the presentation to create a memorable, unified message

[4]Logical flow	1 2 3 4 5	Links and transitions smoothly among different parts of the presentation
[5]Key points	1 2 3 4 5	Central message clear throughout by linking details to big picture

Comments:

III. Displaying key information
No | Not much | Yes, but | Yes | Wow!

Graphics and written information enhance and reinforce the oral delivery through a focus on key points and helpful supporting information

[6]Layout and design	1 2 3 4 5	Easy to follow organization, easily digestible amount of text, compatible color
[7]Focused content	1 2 3 4 5	For each slide, information supports only one or two key points
[8]Graphics	1 2 3 4 5	Maps/charts/graphs/pictures easy to understand and clearly illustrate points

Comments:

IV. Delivering the presentation
No | Not much | Yes, but | Yes | Wow!

Uses both verbal and nonverbal skills to enhance the delivery of the presenter's message

[9]Elaboration	1 2 3 4 5	Avoids reading slides and instead expands upon slide content
[10]Vocal quality	1 2 3 4 5	Uses volume, pace, and inflection to emphasize key points
[11]Personal presence	1 2 3 4 5	Effectively combines energy, eye contact, and movement

Comments:

* These last two skills can be applied to either (1) an individual speaker or (2) the group as a whole

[12]Taking questions*	1 2 3 4 5	Adeptly answers questions to satisfy audience
□ individual		
□ group		

[13]Sensitivity to time*	1 2 3 4 5	Stays within alloted time even with questions throughout presentation
□ individual		
□ group		

Reflection Writing Rubric

	Sophisticated (A)	Very Competent (B)	Fairly Competent (C)	Not Yet Competent (D)
Accuracy (Grasp of readings)	Paper represents the authors' ideas, evidence or conclusions accurately, fairly and eloquently. Shows a firm understanding of the implications of each author's argument(s).	Paper represents the author's ideas, evidence and conclusions accurately.	Paper represents the authors' ideas, evidence and conclusions accurately but not sufficiently clearly. Minor inaccuracies.	Paper misrepresents the authors' ideas, evidence and/or conclusions. Major inaccuracies. Or does not distinguish between major ideas and less relevant points.
Argument (depth of analysis)	Paper fully meets requirements of assignment. Explores implications of chosen ideas for the arts in classical Greece or today in thoughtful and/or original ways. Makes convincing case for why selected key ideas connect (or contradict) two texts, and/or connect (contradict) texts and lectures.	Paper fully meets the requirements but does not exceed them. Makes good case for why selected key ideas connect (or contradict) two texts, and/or connect (contradict) texts and lectures.	Paper does not address some aspects of the assignment. Makes somewhat unconvincing case for why selected ideas connect (contradict) two texts, and/or connect (contradict) texts and lectures.	Paper does not address the assignment. Selects minor rather than key ideas, and/or does not show why the selected ideas connect (or contradict) texts, and/or connect (contradict) texts and lectures.
Clarity	Consistently precise and unambiguous wording, clear and lucid sentence structure. All quotations are well chosen, effectively framed in the text and explicated where necessary.	Mostly precise and unambiguous wording, mostly clear sentence structure. Mostly effective choice of quotation. Mostly effective framing and explication of quotation where necessary.	Imprecise or ambiguous wording. Confusing sentence structure. Poorly chosen quotations, or ineffective framing and explication of quotations.	Consistently imprecise or ambiguous wording, confusing sentence structure. Quotations contradict or confuse student's text. Quotations used to replace student's writing.
Presentation	Paper is clean, correctly formatted (12-point font, Times New Roman, normal margins), written in full sentences. Quotations are all properly attributed and cited in a consistent style. Virtually no spelling or grammatical errors.	Paper is clean, correctly formatted (12-point font, Times New Roman, normal margins), written in full sentences. Quotations are all properly attributed and cited in a consistent style. A few minor spelling or grammatical errors.	Paper is clean, correctly formatted (12-point font, Times New Roman, normal margins), written in full sentences. Some improperly attributed quotations and/or inconsistent citation style. A number of spelling or grammatical errors.	Paper is sloppy or incorrectly formatted, not written in full sentences. Many improperly attributed quotations or inconsistent style of citation. Many spelling or grammatical errors.