

## Teaching UNLV Students: Research-based Strategies for Success

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In this session, we'll share UNLV faculty's strategies for designing assignments that promote students' curiosity and critical thinking. Then we'll review findings from recent research on UNLV students' learning and apply those to the design of your own course activities and assignments. Insights from research on best teaching/learning practices in higher education will inform our work. Participants will leave with an understanding of the state of research, a draft assignment for one of their courses, and a concise set of strategies for designing assignments and projects that inspire UNLV students' learning.

### Publications:

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- Elbow, Peter. "High Stakes and Low Stakes in Assigning and Responding to Writing." *New Directions for Teaching and Learning*, no. 69, spring 1997.
- Felder, Richard. "Hang in There! Dealing with Student Resistance to Learner-Centered Teaching." *Chemical Engineering Education* 43, 2 (SPRING 2011): 131-132.
- Felder, Richard and Rebecca Brent. "Want Your Students to Think Creatively and Critically? How about Teaching Them?" *Chemical Engineering Education*, 48, 2 (Spring 2014): 113-114.
- Fiske, Edward B. "How to Learn in College: Little Groups, Many Tests." *The New York Times*. Monday, March 5, 1990, page A1. [Summary of Richard Light, *Harvard Assessment Reports*]
- Jaschik, Scott and Cathy Davidson. "No Grading, More Learning." *Inside Higher Ed*, May 3, 2010 and HASTAC.org/blogs/cathy-davidson
- Lowman, Joseph. "Assignments that Promote and Integrate Learning." In Menges, Robert J. and Maryellen Weimer, et al. eds. *Teaching on Solid Ground: Using Scholarship to Improve Practice*. San Francisco: Jossey-Bass, 1996.
- Perry, William G., Jr. *Forms of Intellectual and Ethical Development in the College Years: A Scheme*. New York: Holt, Rinehart, and Winston. 1970.
- Steele, Claude M. "Stereotype Threat and the Intellectual Test Performance of African Americans." *Journal of Personality and Social Psychology* (1995):69, 5 (797-813).
- Tanner, Kimberly B. "Prooting Student Metacognition." *CBE Life Sciences Education* 11,2 (June 4, 2012): 113-120.
- Treisman, Uri. "Studying Students Studying Calculus." *The College Mathematics Journal* 23, 5 (1992): 362 – 372.
- Winkelmes, Mary-Ann. "Building Assignments that Teach." *Essays on Teaching Excellence*. Vol. 19, no. 5. POD Network in Higher Education, (2008).
- \_\_\_\_\_. "Transparency in Teaching: Faculty Share Data and Improve Students' Learning." *Liberal Education* 99, 2 (Spring 2013).
- Yeager, David et al. "Addressing Achievement Gaps with Psychological Interventions." *Kappan Magazine* 95, 5 (February 2013): 62-65.

## Research on UNLV Students' Learning

### UNLV Instructors' Responses: Challenges and Successes

Please identify any challenges or barriers to UNLV students' successful completion of assignments	What are the key characteristics of assignments that you have found to be effective in your work with UNLV students?
Discomfort applying new knowledge	<ul style="list-style-type: none"> <li>Apply class concepts to new situations (real-world) during class</li> </ul>
Lack of critical thinking skills	<ul style="list-style-type: none"> <li>In class (with peers) practice in higher order thinking, especially evaluating reliability of info</li> <li>Portfolios enhance students' awareness of skills</li> </ul>
Scattered focus Procrastination	<ul style="list-style-type: none"> <li>Small, frequent assignments</li> <li>Structured, relevant assignments</li> <li>Staged assgts connect w/exams, projects, world</li> <li>Varied multimedia projects</li> </ul>
Lack of models Ambiguous rubrics / success standards	<ul style="list-style-type: none"> <li>Explicit rubrics, annotated examples</li> </ul>
Inadequate time for prof's quality feedback	<ul style="list-style-type: none"> <li>Peer feedback (structured) in/out of class</li> </ul>
Motivation: Individual, and teams with full participation	<ul style="list-style-type: none"> <li>Define assignment's contribution to students' learning;</li> <li>Choice of topic leads to ownership/motivation;</li> <li>Variety and choice of format offers equitable opportunities to excel</li> </ul>

### Transparency in Teaching and Learning in Higher Education Project

Over 2700 UNLV first-year and intro-level students in 2013-2014 indicated below moderate self-ratings in the following areas:

1. ability to recognize when you need help with your academic work
2. understanding of what constitutes successful work in a particular course
3. confidence in ability to succeed in school
4. confidence in ability to succeed in a particular major

Students' self-ratings were significantly higher in a national study in courses where teachers implemented the following transparent teaching strategy at their own discretion:<sup>1</sup>

**Discuss an assignment's learning goals and design rationale before students begin work on any class activity or course assignment**

(see examples at <http://www.unlv.edu/provost/transparency>)

Transparent teaching and learning methods help students understand *how* and *why* they are learning course content in particular ways. The Transparency Project offers faculty a means to gather and share data on how these methods affect students' learning, across departments, institutions and countries. Visit the Transparency Project website to find out more and get involved ([www.unlv.edu/provost/teachingandlearning](http://www.unlv.edu/provost/teachingandlearning)).

<sup>1</sup> Winkelmes, Mary-Ann. "Transparency in Teaching: Faculty Share Data and Improve Students' Learning." *Liberal Education* [Association of American Colleges and Universities] 99, 2 (Spring 2013).

## **TRANSPARENT METHODS\*      Transparency in Learning and Teaching in Higher Education Project**

<http://www.unlv.edu/provost/teachingandlearning>

Transparent teaching and learning methods help students understand *how* and *why* they are learning course content in particular ways. This list of options is adapted frequently as faculty participants identify further ways to provide explicit information to students about learning and teaching practices.

**Faculty participants usually employ one option** from the list and students indicate the impact of this small change when they complete an online survey (taking about four to five minutes) at the end of the course. Please email [mary-ann.winkelm@unlv.edu](mailto:mary-ann.winkelm@unlv.edu) to participate or add your suggestions to the list.

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### **Discuss assignments' learning goals and design rationale before students begin each assignment**

- Chart out the skills students will practice in each assignment
- Begin each assignment by defining the learning benefits to students: skills practiced, content knowledge gained
- Provide criteria for success in advance
- Offer examples of successful work, and annotate them to indicate how criteria apply

### **Invite students to participate in class planning, agenda construction**

- Give students an advanced agenda (2 or 3 main topics) 1-2 days before class, and ask them to identify related sub topics, examples or applications they wish to learn about
- Review the agenda at the outset of each class meeting, including students' subtopics
- Explicitly evaluate progress toward fulfilling the agenda at conclusion of each class meeting
- In large courses, a class committee gathers and contributes students' subtopics to agendas
- Inform students about ideas and questions to be discussed in upcoming class meetings

### **Gauge students' understanding during class via peer work on questions that require students to apply concepts you've taught**

- Create scenarios/applications to test understanding of key concepts during class
- Allow discussion in pairs, instructor's feedback, and more discussion
- Provide explicit assessment of students' understanding, with further explanation if needed, before moving on to teach the next concept

### **Explicitly connect "how people learn" data with course activities when students struggle at difficult transition points**

- Offer research-based explanations about concepts or tasks that students often struggle to master in your discipline  
(See examples: Bloom's taxonomy, William Perry's Phases of Intellectual Development, and subsequent work, Kathleen Butler / Antony Gregorc's Learning Styles, Richard Light's Assessment Seminars, Research on novice vs. expert thinking, Neuroscience: synapse formation and learning)

### **Engage students in applying the grading criteria that you'll use on their work**

- Share criteria for success and examples of good work (as above in "discuss assignments' learning goals"), then ask students to apply these criteria in written feedback on peers' drafts

### **Debrief graded tests and assignments in class**

- Help students identify patterns in their returned, graded work: what kinds of test questions were missed; what types of weaknesses characterize the assigned work
- Let students review any changes or revisions they made, and whether these resulted in improvements or not
- Ask students to record the process steps they used to prepare for the exam or complete the assignment, and to analyze: which parts of the process were efficient, effective, ineffective

### **Offer running commentary on class discussions, to indicate what modes of thought or disciplinary methods are in use**

- Explicitly identify what types of questioning/thinking and what skills of the discipline your students are using in each class meeting
- Invite students to describe the steps in their thought process for addressing/solving a problem
- Engage students in evaluating which types of thinking are most effective for addressing the issues in each class discussion

\* See examples: <http://www.unlv.edu/provost/teachingandlearning>

## Transparent Assignment Template

*This template can be used as a guide for developing and explaining in-class activities and out-of-class assignments. Making these aspects of each course activity or assignment explicitly clear to students has demonstrably enhanced students' learning in a national study.<sup>2</sup>*

### Due date:

**Purpose:** *Define the learning objectives, in language and terms that help students recognize how this assignment will benefit their learning.*

**Skills:** The purpose of this assignment is to help you practice the following skills that are essential to your success in this course / in school / in this field / in professional life beyond school:

*Bloom's Taxonomy of Educational Objectives (summarized in this Univ of Victoria chart) can help you explain these skills in language students will understand. Listed from cognitively simple to most complex, these skills are:*

*understanding basic disciplinary knowledge and methods/tools  
applying basic disciplinary knowledge/tools to problem-solving in a similar but unfamiliar context  
analyzing  
synthesizing  
judging/evaluating and selecting best solutions  
creating/inventing a new interpretation, product, theory*

**UULOs (University Undergraduate Learning Outcomes):**

Intellectual Breadth and Lifelong Learning  
Inquiry and Critical Thinking  
Communication  
Global/Multicultural Knowledge and Awareness  
Citizenship and Ethics

**Knowledge:** This assignment will also help you to become familiar with the following important content knowledge in this discipline:

- 1.
- 2.

**Task:** *Define what activities the student should do/perform. "Question cues" from Bloom's Taxonomy of Educational Objectives (summarized in this Univ of Victoria chart) might be helpful. List any steps or guidelines, or a recommended sequence for the students' efforts.*

### Criteria for Success:

*Define the characteristics of the finished product. Provide specific examples of what these characteristics look like in practice. With students, collaboratively analyze an example of good work before the students begin working. Offer a critiqued example of excellent work with specific indicators of what makes the work successful. Explain how excellent work differs from adequate work. It is often useful to provide a checklist of characteristics of successful work to help the student know if s/he is doing high quality work while s/he is working on the assignment. This enables students to evaluate the quality of their own efforts while they are working, and to judge the success of their completed work. Students can also use your checklist to provide feedback on peers' coursework. Indicate whether this task/product will be graded and/or how it factors into the student's overall grade for the course. Later, asking students to reflect and comment on their completed, graded work empowers them to focus on changes to their learning strategies that might improve their future work.*

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2 Winkelmes, Mary-Ann. "Transparency in Teaching: Faculty Share Data and Improve Students' Learning." *Liberal Education* [Association of American Colleges and Universities] 99, 2 (Spring 2013).

## Sample Assignments

A

GENERAL EDUCATION 150: LOOKING AT AMERICA

Paper I (5-7 pages) Due: March 12

### Photographs for assignment:

1. William Klein. "Severed Head, 5th Avenue." 1955. Found in American Images, ed. Peter Turner, p. 83. (You should mask out with paper the surrounding images on the same page.)
2. E. O. Beaman. "The Heart of Lodore, Green River." Dinosaur National Monument, Colorado. 1871. Found in The History of Photography, Beaumont Newhall, p. 98.

### Quotations from reading:

Here [the wilderness along the frontier] was an opportunity for social development continually to begin over again, whenever society gave signs of breaking into classes. Here was a magic fountain of youth in which America continually bathed and was rejuvenated. (Henry Nash Smith quoting Frederick Turner, Virgin Land, p. 254)

The search for identity assumes many forms; one which directly affects the landscape is a growing dependence on other people, a gregariousness.... At that time [a hundred and fifty years ago] solitary confinement was not thought of as a punishment, but a speedy and effective type of reform therapy: the individual was confronted with himself and learned what his mistakes had been. He was safe from the contamination of society. Now it is considered the harshest punishment that can be inflicted. (J.B. Jackson, "The Social Landscape," p. 147.)

### In writing your papers:

- A) Look at the details and figures of each photograph and how they interact to compose the scenes.
- B) Look at each picture as a dramatic moment and compare and contrast their meanings.
- C) Discuss what you find in consideration of the above quotations and, more generally, American landscape and individualism.
- D) As a foundation for your discussion, your paper should make specific references to the reading and lectures of weeks one through four.

## Sample Assignments

B

### **Psychology 100: Introduction to Psychology**

Steve Most and Dave Marx, Teaching Assistants, Harvard University

Due: October 21

Please write 1-2 pages discussing the following topic. Papers should be 12 pt and double-spaced with 1-inch margins. Be sure to support your argument with material from the lecture and/or readings.

#### Topic 2: The Nervous System

You and your friends, Fred, Daphne, Velma, and Shaggy, drive up to the old LeDoux mansion in order to investigate reports of a scary ghost in the area. You are a little nervous because, during your last investigation, a series of misfortunes befell your friends. Fred sustained damage to his amygdala; and anvil fell on Shaggy's head, obliterating his Wernicke's area; Velma's basal ganglia and cerebellum were destroyed in a fire, and, in a late night game of poker, Daphne lost everything but her association cortex.

Fearing for your safety, you elect to stay behind with the van while your friends head off into the mansion. The plan is simple: someone needs to confront the ghost without getting too scared someone needs to try to figure out what the ghost is saying, and someone needs to figure out what the next plan of actions should be.

Since you are staying with the van, you get to decide which of your friends will carry out which tasks. Choose wisely (and explain your choices)!

**C**

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## **Sample Assignments**

**D**

### **COLA 100E Major/Career Interview Assignment**

1. Select a professional in your prospective academic discipline and/or career field that is considered an expert in an area in which you are interested.
2. Secure an interview with the professional for a date and time that is convenient for both of you.
3. Prepare 8-10 questions to ask the professional about their knowledge of a particular academic discipline/career field.
4. Conduct a 20 – 30 minute, face-to-face interview to gather knowledge that will help you make an informed decision about the major/career you are considering. You will want to audio/video record the interview with the interviewee's permission.
5. Prepare a typed transcript of the questions and answers using the audio/video recording
6. Write a 400 – 500 word reflection paper in which you address the following items:
  1. Who you selected and why?
  2. What you learned from them that is most interesting?
  3. What this assignment helped you learn about your major/career decision?
  4. What questions you still have?
7. Submit the typed transcript and reflection paper to your instructor.



## Teaching UNLV Students: Research-based Strategies for Success (Part 2)

In this session, we'll review research on students' learning that informs **how the sequence of class activities and assignments can enhance students' learning**. We'll highlight learning goals from your courses. Then you'll draft a sequence of activities and assignments for a course you are teaching. Participants will leave with an understanding of the state of research, and a draft plan for a sequence of activities and assignments that will promote UNLV students' learning in one of their courses.

### Exercise #1

In pairs or 3s at tables:

Discuss and define (pairs, 5 mins):

Three years after taking your course,

- what essential **knowledge** should students retain?
- what **skills** should students be able to perform?

List in sequence (simplest to most complex)

Two documents may help as you complete this task:

1. Bloom's Taxonomy Chart [below]
2. University of Nevada, Las Vegas Undergraduate Learning Outcomes (UULOs) [p.9]

### Bloom's Taxonomy of Educational Objectives

Competence	Skills	Assignment Cues
Knowledge	<ul style="list-style-type: none"> <li>• observation and recall of information</li> <li>• knowledge of dates, events, places</li> <li>• knowledge of major ideas</li> <li>• mastery of subject matter</li> </ul>	list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc.
Comprehension	<ul style="list-style-type: none"> <li>• understanding information</li> <li>• grasp meaning</li> <li>• translate knowledge into new context</li> <li>• interpret facts, compare, contrast</li> <li>• order, group, infer causes</li> <li>• predict consequences</li> </ul>	summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend
Application	<ul style="list-style-type: none"> <li>• use information</li> <li>• use methods, concepts, theories in new situations</li> <li>• solve problems using required skills or knowledge</li> </ul>	apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover
Analysis	<ul style="list-style-type: none"> <li>• seeing patterns</li> <li>• organization of parts</li> <li>• recognition of hidden meanings</li> <li>• identification of components</li> </ul>	analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer
Synthesis	<ul style="list-style-type: none"> <li>• use old ideas to create new ones</li> <li>• generalize from given facts</li> <li>• relate knowledge from several areas</li> <li>• predict, draw conclusions</li> </ul>	combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalize, rewrite
Evaluation	<ul style="list-style-type: none"> <li>• compare and discriminate between ideas</li> <li>• assess value of theories, presentations</li> <li>• make choices based on reasoned argument</li> <li>• based on reasoned argument</li> <li>• verify value of evidence</li> <li>• recognize subjectivity</li> </ul>	assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize

Chart Copyright © 2005, Counselling Services, University of Victoria,  
<http://www.coun.uvic.ca/learn/program/hndouts/bloom.html> Adapted by permission of the publisher from Benjamin S. Bloom *Taxonomy of Educational Objectives*. Boston: Allyn and Bacon, 1984. Copyright (c) 1984 by Pearson Education.

## University of Nevada, Las Vegas Undergraduate Learning Outcomes (UULOs)

### Intellectual Breadth and Lifelong Learning

Graduates are able to understand and integrate basic principles of the natural sciences, social sciences, humanities, fine arts, and health sciences, and develop skills and a desire for lifelong learning. Specific outcomes for all students include:

1. Demonstrate in-depth knowledge and skills in at least one major area.
2. Identify the fundamental principles of the natural and health sciences, social sciences, humanities, and fine arts.
3. Apply the research methods and theoretical models of the natural and health sciences, social sciences, humanities, and fine arts to define, solve, and evaluate problems.
4. Transfer knowledge and skills gained from general and specialized studies to new settings and complex problems.
5. Demonstrate lifelong learning skills, including the ability to place problems in personally meaningful contexts; reflect on one's own understanding; demonstrate awareness of what needs to be learned; articulate a learning plan; and act independently on the plan, using appropriate resources.
6. Achieve success in one's chosen field or discipline, including applying persistence, motivation, interpersonal communications, leadership, goal setting, and career skills.

### Inquiry and Critical Thinking

Graduates are able to identify problems, articulate questions, and use various forms of research and reasoning to guide the collection, analysis, and use of information related to those problems. Specific outcomes for all students include:

1. Identify problems, articulate questions or hypotheses, and determine the need for information.
2. Access and collect the needed information from appropriate primary and secondary sources.
3. Use quantitative and qualitative methods, including the ability to recognize assumptions, draw inferences, make deductions, and interpret information to analyze problems in context, and then draw conclusions.
4. Recognize the complexity of problems, and identify different perspectives from which problems and questions can be viewed.
5. Evaluate and report on conclusions, including discussing the basis for and strength of findings, and identify areas where further inquiry is needed.
6. Identify, analyze, and evaluate reasoning, and construct and defend reasonable arguments and explanations.

### Communication

Graduates are able to write and speak effectively to both general and specialized audiences, create effective visuals that support written or spoken communication, and use electronic media common to one's field or profession. Specific outcomes for all students include:

1. Demonstrate general academic literacy, including how to respond to the needs of audiences and to different kinds of rhetorical situations, analyze and evaluate reasons and evidence, and construct research-based arguments using Standard Written English.
2. Effectively use the common genres and conventions for writing within a particular discipline or profession.
3. Prepare and deliver effective oral presentations.
4. Collaborate effectively with others to share information, solve problems, or complete tasks.
5. Produce effective visuals using different media.
6. Apply the up-to-date technologies commonly used to research and communicate within one's field.

### Global/Multicultural Knowledge and Awareness

Graduates will have developed knowledge of global and multicultural societies, and an awareness of their place in and effect on them.

Specific outcomes for all students include:

1. Demonstrate knowledge of the history, philosophy, arts, and geography of world cultures.
2. Respond to diverse perspectives linked to identity, including age, ability, religion, politics, race, gender, ethnicity, and sexuality; both in American and international contexts.
3. Apply the concept of social justice.
4. Demonstrate familiarity with a non-native language, or experience living in a different culture.
5. Function effectively in diverse groups.
6. Demonstrate awareness of one's own place in and effect on the world.

### Citizenship and Ethics

Graduates are able to participate knowledgeably and actively in the public life of our communities and make informed, responsible, and ethical decisions in their personal and professional lives. Specific outcomes for all students include:

1. Acquire knowledge of political, economic, and social institutions.
2. Identify the various rights and obligations that citizens have in their communities.
3. Apply various forms of citizenship skills such as media analysis, letter writing, community service, and lobbying.
4. Explain the concept of sustainability as it impacts economic, environmental, and social concerns.
5. Examine various concepts and theories of ethics, and how to deliberate and assess claims about ethical issues.
6. Apply ethical concepts and theories to specific ethical dilemmas students will experience in their personal and professional lives.

## Sequencing Worksheet for Course Activities and Assignments

### Sequencing Worksheet for Course Activities and Assignments

LEARNING GOAL 3 years out (Bloom)	LEARNING GOAL 3 years out (UULOs)	ACTIVITY	CUES (Bloom/Felder)	ASSESSMENT FROM Peer(s) / Teacher	STAKES % High/Low	TIME-SAVERS
Knowledge of: - basic tools/methods - content						
Application Analysis interpret (primary source, history)	<ul style="list-style-type: none"> <li>• transferrable skills</li> <li>• recognize assumptions</li> <li>• draw inferences</li> <li>• ID perspectives</li> <li>• interpret information</li> <li>• analyze problem in context</li> </ul>	in class: 1) small groups consider conflicting descriptions of same event 2) discuss context, identify evidence	summarize compare explain list examples	peers (use checklist)	low: 2%  medium: 20%	varied format (first oral, then written) students apply teacher's provided criteria peer feedback low stakes for practice, creativity, risk
Evaluation		out of class: individuals do the same as above for a different event	same	teacher (use checklist)		try, get feedback, try again
Creative Contribution						

## Sequencing Worksheet for Course Activities and Assignments (Blank)

LEARNING GOAL 3 years out (Bloom)	LEARNING GOAL 3 years out (UULOs)	ACTIVITY: Do it to learn it (in-class exercise, out-of- class assignment, online, on- site)	CUES (Bloom, Felder)	ASSESSMENT FROM Peers/Teacher	STAKES % High/Low	TIME SAVERS
<b>Knowledge</b> - basic tools/methods - content						
<b>Application Analysis</b>						
<b>Evaluation</b>						
<b>Creative Contribution</b>						

<b>Transparent Assignment Template (BLANK)</b>
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**Due Date:**

**Purpose:**

**Skills:**

**Knowledge:**

**Task:**

**Criteria for Success:**