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Classroom Assessment, Departmental Assessment and Assessment for Student Support Units

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Classroom Grading and Assessment

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Basics

Definition
Assessment of student learning is the systematic gathering of information about student learning and the factors that affect learning, undertaken with the resources, time, and expertise available, for the purpose of improving the learning.

The Three Basic Steps of Assessment

1. Articulate learning goals
   "When students complete this [course, major, gen-ed program] we want them to be able to…."
2. Gather information about how well students are achieving the goals and why
3. Use the information for improvement

The End of Assessment is Action
The purpose of assessment is informed decision-making, including the use of information about student learning.

Establish Goals

Format: When they complete this course/program/degree, students will be able to….

a. Use specific verbs (*explain, synthesize, analyze,* or *apply* rather than broader terms like *know* or *understand*)
b. Avoid passive voice verbs (e.g. "I want students to be exposed to...")

Examples:

History: I want students to be able to:

- Identify and describe major historical events and concepts
- Construct historical arguments, orally and in writing: State a position on a debatable historical issue, support the position with historical data, and raise and answer counter-arguments
- Follow ethical and scholarly practices for using sources and working with colleagues

Chemistry: I want students to be able to:

- View science as questions that are constantly being reframed and investigated
- Possess the chemical tools to build further knowledge
- View chemistry problems as unique, requiring problem-solving skills
- Be interested and confident enough to read and explore independently
- Communicate appropriately about chemistry to professional and lay audiences

Swine Management

- Identify and describe major swine diseases and their control/management

- Construct a financial plan for a swine management operation
- Communicate in ways that are important in the field
- [Other similar goals]
- Appreciate the pig!

WE can set goals 'til the pigs come home, BUT nothing happens unless our STUDENTS have appropriate goals for themselves.

- People solve the problems they define for themselves, not the problems other people present.
- Goals are a significant factor in motivation (Svinicki, 2007).

Suggestions:

- Include the goals THROUGHOUT your syllabus.
- On the first day, elicit students' goals and plans for reaching the goals.
- Check again periodically on whether they perceive they are reaching the goals.
- Emphasize how assignments and exams teach and test the goals
- Cover sheet: how has this assignment helped you reach your learning goals?
- YOUR suggestions?

Use Teaching Methods Suggested by Research

1. Have students write about and discuss what they are learning
2. Encourage faculty-student contact, in and out of class
3. Get students working with one another on substantive tasks, in and out of class
4. Give prompt and frequent feedback to students about their progress
5. Communicate high expectations
6. Make standards and grading criteria explicit
7. Help students to achieve those expectations and meet the criteria
8. Respect diverse talents and ways of learning
9. Use problems, questions, or issues, not merely content coverage, as points of entry into the subject and as sources of motivation for sustained inquiry
10. Make courses assignment-centered rather than merely text- and lecture-centered. Then focus on helping students successfully complete the assignments.

(Draws from Chickering and Gamson, 1987; Kurfiss, 1988. These classic documents are still widely used and affirmed by more recent research.)

Use Times and Spaces Efficiently

	Students with Teacher (Class)	**Student AStudy@ Time**	**Teacher Alone**
Using Class for	**first exposure**	**process**	**response**

First Exposure			
Using Class for Process and Response	**process, response**	**first exposure**	

Aspects of the Learning Process

First Exposure: Student first hears/reads/view new information/concepts
Process: Student, synthesizes, analyzes, critiques, evaluates, applies the information
Response: Student receives feedback from teacher, peers, or others

Principles for Using Time and Space Efficiently

1. Require students to spend appropriate time out of class. Move first-exposure to out-of-class time.
2. Use in-class for process and response.
3. Assign frequent writing to be processed in class, taking minimal amount of teacher out-of-class time, and serving the purposes of
    a. Helping students keep up with reading assignments
    b. Helping students comprehend and apply reading
    c. Enforcing attendance and attention in class
    d. Providing early checkpoints for students having trouble
    e. Provide multiple points of assessment
    f. Guide the production of larger, formal assignments
4. Reduce number of finished, formal assignment to which the teacher responds fully in his/her own time. Use these for demonstrating that the student can pull together course material and apply sophisticated skills.
5. Guide students' process for the formal assignments.

Case Histories

Course	**Problem**	**How the teacher moved first exposure to student time**
History: Western Civ: 40 students. Goal: teach students to argue about historical issues	Students did not read before lecture. Most did not contribute to discussion. Written exams and papers were largely recap of lectured and textbook material. Students needed practice in argument.	Required students to bring to class, almost daily, two copies of a 1-2-page written response to reading, which then became the basis for in-class process and response. Students handed in one copy and kept the other at their seats. Prof. ensured that students, in class, wrote comments on their own copies of the assignments. After class, he merely gave credit to the students, using the other copy, taking 2-4 seconds per paper. (Appendix B)

Course	Problem	How the teacher moved first exposure to student time
Physics: Intro: 60 students. Goal: Help students comprehend physics principles and apply them to solve problems	Students asked few questions during lecture, but then could not do homework problems. Students needed teacher's help when they struggled with a problem.	Videotaped his own lectures, and required students to view them out of class (might also have used instructional software.) In class, students in teams did homework problems. Prof. checked team's homework before they left the room.
Psych: Intro: 120 students. Some students fulfilling gen. ed. Some, in health sciences, would need the material for their licensure exams.	Students needed to master large amounts of facts, concepts, and vocabulary, but also to experience psychology as inquiry into human behavior. Many students were reluctant or unskilled readers, or non-native speakers of English	"Little engine that could" system in which students were to read the text, use the teacher's handout to help them, and then take 8 multiple-choice tests over the material. In class, prof. spent first 20 minutes answering any questions students had about the reading material, and then turned the class into a "lab," guiding students through a small psychological inquiry, which they submitted toward the end of the course.
YOUR	STORY	HERE

Establish and Communicate Criteria and Standards for Student Work

- Even in intuitional grading ("It feels like a B") there are criteria at work, which can be stated.
- Do not be afraid to express your highest goals in the clearest language you can.
- Rubrics or written criteria and grading guidelines bring several advantages:
    - Help you address grade inflation and pressure from students for higher grades
    - Save time in the long run (though rubrics take time up front)
    - Help you be consistent
    - Clarify for you and your students what you expect
    - Help you focus your and your students' efforts. Teach to the criteria, not the test.

Examples: see Appendix A

Save Time and Enhance Learning in the Grading Process

- Establish clear instructions and standards ahead of time. Share with students. Rubric? List of criteria for an A? List of qualities you will look for?
- Do not spend the most time on the worst papers.
- Consider "gateway criteria" and share with students.
- Suit the response to the situation and purpose:
    - Draft response to guide revision
    - Final grade, but student can use these suggestions for the next paper
    - No further papers in this course
- Identify what you want the student to do and to learn. Is this a teachable moment?
- Find out what the student knows. Log showing how much time was spent, what was done, and "If I had more time to revise this paper, I would…."
- Select a medium: written response, synchronous oral comments (face-to-face or online), or recorded oral comments.
- Respond to most important issues first. Don't overwhelm the student with comments.
- Select key instances of a problem; don't mark everything.
- Do not edit grammar and punctuation. Instead, ensure that the student has edited or gotten appropriate editors. Mark a sample passage or paragraph for illustration.
- Focus on what the student can do next.
- Respect the student's space and authorship. Choose the lowest response level that you think will be effective:
    - Lowest: reflect your reading experience: "I was confused here."
    - Middle: Suggest more than one possible change
    - Higher: Suggest only one possible change
    - Highest, most directive: rewrite the passage

Example: History

Assignment (summarized):
In 5-8 pages, propose to the ruler of a hypothetical nation a type of government that would be the best solution to 17th century anarchy in Europe. Draw on your knowledge of the 17th century governments we have studied.

Response to Draft:
Instructor makes an outline as he reads; shares it with the student:

Introduction: Facts about 17th century anarchy
Thesis: strong government is best solution to anarchy
Alternative 1: Description of French absolute monarchy
Facts: What it did
Alternative 2: Description of English mixed government

Facts: What it did
Thesis: English mixed model would be best solution to anarchy

Instructor Writes Final Comment on Draft:
This essay puts forward a very clear thesis that a "strong government" is needed to end anarchy. After reviewing alternatives, you end by saying that a mixed government on the English model would work best for our hypothetical nation. What is missing here is argument and evidence in favor of the thesis that you state so clearly. WHY would this system work so well? Listen carefully in class when we go over the kinds of evidence that would work, and read the class website page on "Using evidence for historical arguments."
Remember that the revision must be well edited for grammar and punctuation. You have some its/it's confusion and some sentence fragments, plus other issues. The Writing Center can help.

Marginal Comments on Draft:

At end of alternative 1: *You have described the facts about the French monarchy, but now I wonder how effective it is in ending anarchy?*
At end of alternative 2: *You have described the facts about the English government, but now I wonder how it compares to the French system in ending anarchy?*
Next to the statement that the English model would be best: *I'm not convinced, because you have not given me argument and evidence about WHY the English model would be the best solution for anarchy.*

Rubric

Response to Final Revision:

- Rubric for final revision, with new mark.
- Comment on Final Revision

  You began to provide evidence and argument about why the English model would be the best solution to anarchy. Keep working on this issue of evidence and argument in your next papers.

Example 2

Assignment: Research paper. Student has chosen gun control
(instructor's comments)

Whenever someone answered he
Whoever answer the question wrong had to put the gun to his head and pull the trigger.

Finally one man made a mistake, and when he pulled the trigger he was killed instantly.
The man answered the question wrong He pulled the trigger and was killed instantly.

as Dangerous games
The others were arrested and charged with accessories to a murder. Dangerous games

like this couldn't happen if guns were not so easily available.
like this could lead many people to be killed or jailed. Too obvious to mention.

Paper on childless women. Same student, different class:

I want to talk about a topic which is not talked about often—childless women. Believe me, there are women out who do not want children just as much as women who do. Childless women aren't as equally respected as their maternal counterparts. They are considered selfish women who are not doing their duty.

Instructor Writes: *You need a more definite thesis. What do you believe about this? What's your argument*?

(Sternglass, Marilyn. *Time to Know Them*, 1997, p. 126)

Example 3

Assignment: Summarize in one page a scientific article for an audience of your classmates. **Learning Goals**: students would learn how to read, understand, and summarize biological literature. Students would also get an idea about how biologists work and how they present their work to others.

***Student Writes*:** (I have numbered the sentences for ease of reference in the workshop)

(1) The purpose of this study was to examine the role of activity in prey selection. (2) The first of three experiments reported herein examined the role of prey activity when a Red-Tailed Hawk (Buteo jamaicensis) was offered a choice between two live prey animals. (3) The second experiment examined changes in prey activity preferences when the hawk was offered two comparatively large prey animals. (4) In the third experiment the hawk was offered two prey of different weights to determine if this would affect the selection against more active prey.

(5) In the first experiment the hawk preferred the more active of the two prey animals when no other differences were apparent between them.

(6) The second experiment varied in its results. (7) If one of the large prey was relatively inactive, the hawk went for it. (8) Over many trials, however, the preference for the less active animal was often replaced by a high-activity preference if the hawk was successful in subduing the larger animals.

(9)Experiment three showed a clear preference for heavier, less active prey. (10) Comparing the data in experiment one, showing a strong preference for the more active prey, with the third where the larger prey was less active and still preferred, may have demonstrated a tendency in the hawk to choose the apparently more profitable prey item in terms of relative biomass.

Walvoord, *Helping Students Write Well*, 2nd ed., 1986, p. 153-154. Article summarized is Ron L. Snyder, "Some

Prey Preference Factors for a Red-Tailed Hawk." *AUK* 92.3. July 1975: 547-52.)

Note: what is not clear in this student's summary is that the first prey was mice of the same size but one more active; the second prey was rats, who are capable of injuring a hawk, and the third prey was chicks, one larger and less active. Par. 1 is almost directly quoted from the first paragraph of the article; final paragraph is almost directly quoted from the final paragraph of the article. The student omits some of the most interesting reflections of the author about the reasons for the behavior.

Responses by Various Instructors in a Workshop

#1: *I would like to see a more complete explanation of the problem these experiments seek to address. What is at stake? What possible combinations could or could not have resulted? In following through you need to take another look at some of your sentences (see notations) for clarity.*

#2*: It appears that there are three main factors that you want to discuss (size, activity, weight) and then want to compare. Am I correct? If so, write one paragraph for each (T = 4 paragraphs) or one paragraph in which all three factors are discussed. At present the content of each paragraph is not appropriate. Can you explain this article using your own words, not the article's?*

#3: *I had trouble figuring out the prey activity of the hawk. Perhaps if you put each experiment and result together this would help.*

#4: *Your information appears to me to be accurately presented from the source you cite. Your abstract is successful to a point. I like your preview sentence.*
A few suggestions:

1. *Begin with an orienting sentence or two before you state your purpose.*
2. *Watch your spelling, misused words, redundant words, etc.*
    a. *apparent, p. 2*
    b. *herein, p. 1*
3. *Amplify each experiment a bit more.*
4. *Grammar—if one of the …were, p. 3*

Last sentence needs rewriting to act as a residual or summary. Avoid closing without summary.

#5: *Jack, you do well to begin with a clear statement of the purpose. Next you seem to outline first the choices offered in each experiment and then the results of each. But the whole section was not clear as I read it. Suggestions:*

- *Stick rigidly to a plan that gives choices for each experiment, then results for each, as now, OR treat all information on exp. 1 together, then all on exp. 2, then exp. 3. Choose whichever you think will be clearer to the reader.*

- *For each exp., give all essential information. Ask yourself, What does the reader need to know, and when? For example, one of my questions was, In exp. 1 and 2, were both prey equally active?*
- *Your final sentence rightly presents the results and their significance, but it is clumsy because too many words separate subject from verb.*

Example 4

*The main point of this topic is that the Children an College students aren't learning how to read and write for that they will used later in life. I don't believe society has prepared me for the work I want to do that. is in education speaking, that my point in being here, If this isn't a essay. of a thousand word's that because I don't have much to say. for it has been four years since I last wrote one, and by the time I am finish here I hope to be able to write an number of essay. (*Mina Shaughnessy. *Errors and Expectations*. New York: Oxford, 1977, p. 14)

Use Classroom Information about Learning to Improve Your Own Teaching

- Require "logs" of how papers and exams were generated
- Ask your students frequently about their learning experience
  Example: see Appendix B
- Keep a log throughout the course, with a major evaluative entry at the end. Reread the log before teaching the course again
- Seek help from a teaching/learning center or knowledgeable colleague
- Watch other people teach, examine other syllabi, etc.
- Use the literature on teaching and learning

What do My Students Think Is Working?

1. End-of-class responses (Appendix B)
2. Questionnaire (Appendix B)
3. Interviews or focus groups by you or a third party
4. Logs

What Can I Learn from Analysis of Student Work?

1. Rubric scores (Appendix A)
2. Analysis: What's going on here?

Case Study #1

Students in "Western Civilization" are studying Louis XIV of France. They are asked to read a

primary source—an evaluation of Louis by St. Simon--and to write briefly "how can this reading be used as evidence on the issue of whether Louis XIV was a good king or not?" The writing will be the basis of class discussion, and students will receive response IN CLASS. The instructor's goal for this assignment is that students will not just summarize the source but evaluate its strengths and weaknesses as evidence on the issue.

Student #1 Paper

Saint-Simon felt Louis XIV, as an absolute monarch was a bad thing because he had little education; he had spies everywhere that could tell him everything and when Courtenvaux made this known to the public, Courtenvaux position was taken from him; members of the Church sometimes acted as he wanted. For example, Abbe de Vatteville, ordained a priest, committed crimes yet made a deal with the government to be pardoned and live as abbey of Baume; in 1706, France lost wars and sustained losses on account of the cost of war. When Chamillart, the head of both finance and war department, could not carry on affairs due to lack of money, he asked to be relieved of his position; however, the king refused; finally, there was a tax put on baptisms and marriages because the need for money was so great. Poor people began to perform marriages themselves and their children were considered illegitimate. Peasants revolted against this tax, and it eventually had to be lifted. Louis was hurting the poor when he claimed he was trying to help them.

Student #1 Log about Writing the Assignment

I really am not sure I did this assignment in the way the Professor planned it to be done. I took specific examples to back up what I thought the point of [the reading assignment] is.

Student #2 Paper

[Begins with a similar summary of St. Simon's criticisms of Louis. Then, as last paragraph:]

This all presents Louis as a bad king; however we must not forget that this was written after Louis' death and by a member of the social class which had the least to gain from Absolutism and who were viewed by Louis as the biggest threat to his person and his rule. But the material itself could be used to support the ideas that Louis' vanity made him a bad king; or that he was merciless in his demand for money to squander; or that he acted only on his own best interest rather than the best interest of the country by spying on his subjects and appointing ignorant people to positions of authority.

Case Study #2

Students in a business class are to analyze production processes in two local fast food restaurants, using concepts from their textbook. Instructor lectures on the concepts. Assignment sheet:

In 250 – 300 words, compare and contrast the layout and work design of McDonald's

and Popeye's on York Road. Evaluate the two on the effectiveness with which each serves its customers. A careful evaluation of what each restaurant is trying to provide should precede or begin your analysis, and such concepts as line balancing, type of processing, and specialization should be included. Chapters 7 and 8 in the Stevenson text can provide guidance, and a visit to each site may be unavoidable. In class, instructor emphasizes the need for a "theme" for the paper. (Walvoord and Sherman, 1990, p. 62)

Problems and Processes

Grades and Information-Gathering Strategies of Representative Group of Students

Verbal SAT	Read text before visit	Visit both	Take notes at restaurant	Visit, then read text	Visit Popeye's only	Notes after visit or no notes
Grade A						
570				X	X	X
510	X	X	X			
430	X	X	X			
410	X		X		X	
400	X		X		X	
n.i.	X	X			X	
B or lower						
520				X	X	X
490				X	X	X
440				X	X	X
410				X	X	X
310				X	X	X

Student Log on Writing the Paper

Oct. 15: I visited Popeye's & ate lunch there. I took mental notes about the service & the layout of the restaurant. Tonight, I read part of each of the chapters in the textbook about the areas our paper is supposed to cover.

October 18: I wrote my first draft today. I hadn't really thought about the theme until I started to write the paper. I knew basically what the body of my paper was going to be, though. We were supposed to include certain points in the paper so that is what I based my paragraphs on. I really couldn't think of a good way to end my paper. I don't want to have too much of a conclusion really, because the paper can't be any more than 1 page long. My paper just sort of stops, but I really don't know what to say exactly to make it end smoothly and keep within the 1 page limit. (Walvoord and Sherman, 1990, p. 65)

Case Study #3

In a senior class on "Biological Research," the main assignment is for students to conduct an original scientific experiment and write it up in scientific report format.

How the Instructor Teaches Scientific Format:

- Early in the semester, students read five appropriately-formatted scientific articles and write abstracts of them.
- At the beginning of students' work on the research project, a lecture and handout explaining that scientific format includes these sections: title, abstract, introduction, methods and materials, results, and conclusions/implications.
- Several sessions after the lecture on the scientific format, ask students to bring in three draft pages from their own methods and materials section. In-class peer-conferencing for students to address format or other concerns about their papers.

Problems:

- Papers with no sections
- Omitted sections
- Extra sections
- Organized material poorly within sections

Use Classroom Information for Departmental Assessment

See Appendix C.

Appendix A: Sample Grading Sheets/Rubrics

(Note: these examples are actual classroom documents developed by faculty; they are not perfect; I chose them because they raise important issues)

Grading Sheet for First-Year Western Civilization Course Required as Part of Gen Ed, by John Breihan, History, Loyola College in Maryland

The scale describes a variety of common types of paper but may not exactly describe yours; my mark on the scale denotes roughly where it falls. More precise information can be derived from comments and conferences with the instructor [Breihan would offer written comments on the paper, in addition to his mark on this scale.]

Grade:

1. The paper is dishonest

F 2. The paper completely ignores the questions set.

3. The paper is incomprehensible due to errors in language or usage.

4. The paper contains very serious factual errors.

D 5. The paper simply lists, narrates, or describes historical data, and includes several factual errors

6. The paper correctly lists, narrates, or describes historical data but makes little or not attempt to frame an argument or thesis.

7. The paper states an argument or thesis, but one that does not address the question set.

C 8. The paper states an argument or thesis, but supporting subtheses and factual evidence are:

   a. Missing
   b. Incorrect or anachronistic
   c. Irrelevant
   d. Not sufficiently specific
   e. All or partly obscured by errors in language or usage

9. The paper states an argument on the appropriate topic, clearly supported by relevant subtheses and specific factual evidence, but counterarguments and counterexamples are not mentioned or answered.

B 10. The paper contains an argument, relevant subtheses, and specific evidence; counterarguments and counterexamples are mentioned by not adequately answered:

   A. Factual evidence incorrect or missing or not specific
   B. Linking subtheses either unclear or missing
   C. Counterarguments and counterexamples not clearly stated; Astraw man@

A 11. The paper adequately states and defends an argument, and answers all counterarguments and counterexamples suggested by:

   A. Lectures
   B. Reading: specific arguments and authors mentioned by name
   C. Common sense

Grading Sheet for Journals in Beginner's Spanish III, by Dorothy Sole, Univ. Cincinnati

4 - The content of the journal is by and large comprehensible. Although there are errors, verb tenses sentence structure, and vocabulary are in the main correctly used. The author has taken some chance s, employing sentence structures or expressing thoughts that are on the edge of what we have been studying. The entries are varied in subject and form.

3 - There is some use of appropriate verb tenses and correct Spanish structure and vocabulary, but incorrect usage and/or vocabulary interferes with the reader's comprehension.

2 - The reader finds many of the entries difficult to understand, and/or many entries are simplistic and/or repetitious.

1 - The majority of the entries are virtually incomprehensible.

In addition to this scale, part of the grade is based on the number of entries and their length.

Rubric for Journals in English Literature General-Education Course: Students' Ability to Connect Literature to Their Own Lives and Values

Trait: Connecting literature to students= own lives and values

1 Journal entry merely summarizes the literature OR merely reflects on the student=s own life and values

2 Journal entry summarizes the literature AND reflects on the student=s life and values, but makes little or no explicit connection between the two

3 Entry uses the literature in a very simple way to draw Alessons@ to apply to his/her own life

4 Entry makes thoughtful links between the literature and his/her own life and values. It uses the literature as a vehicle for pushing and exploring the student=s own life and values. It recognizes the complexity both of the literary work and of life and values.

Rubric for Architecture Senior Studio Project

Cara Carroccia, University of Notre Dame

Program Plan

4 The assigned program is carefully analyzed and developed. The architect has not omitted any portion of the program and has in fact added to the program

3 The architect provides some insight or depth of understanding to the assigned program. However, the internal logic and character of the work needs to be more clearly established and developed.

2 The development of the program is generalized and lifeless. Mainly surface relationships are provided. The program has not been developed much beyond the level of bubble diagram.

1 The architect communicates no real understanding or development of the assigned program.

Clarity of Concept and Design Objectives

4 The architect=s concept is organized and unified and has logical transitions between the urban and intimate scale.

3 The design objective is mainly clear to the viewer because the architect has tried to order his/her objectives. The link between the urban and architectural realms is not fully explained graphically.

2 Although there may be some attempt at presenting design objectives in a thoughtful manner, the work is confused and disjunctive.

1 The project has no discernible concept.

Style

4 The architect demonstrates a quality of imagination and rigor that results in a distinctive project. The work shows a personal exploration.

3 The architect includes refining details, but a portion of the work remains general. The overall composition is pleasing.

2 The architect does not invest himself or herself into the work. The style seems bland, guarded, flat and not very interesting.

1 The architect demonstrated no recognizable individualistic or historic style

Development of the Small Scale; Detailed Information

4 Character, detail and scale are clearly expressed in plan and section.

3 Some details are thoughtful and vivid. However, the character of the plan and/or section is not developed.

2 Simplistic details are used in a typical way. Repetition of these details distracts from the work. The plan and section together describe a reasonable, believable building, but little information about or attention to detail is developed.

1 Development of the character of the plan and/or section is limited and immature.

Development of the Urban Scale

4 The development of the urban scale shows a confident control of the project and communicates a clear parti. The work Areads@ smoothly from urban scale to the intimate scale. Coherent development at this level makes the project clear and easy to understand.

3 The architect shows some control in the development of an urban parti, and has only a few elements at the urban scale at are awkward or perfunctory.

2 The architect has definite problems with parti: in simplistic terms, the big idea. Most of the urban plan is simplistic in conception, and immature in its development.

1 There is no discernable urban idea. All is perfunctory.

Knowledge of Construction

4 There are not obvious errors in construction. The architect shows he/she is familiar with the building materials and their appropriate use.

3 A few errors in construction practices appear in the project, showing the architect is still learning about the building materials that were chosen. These errors do not substantially detract from the overall impression of the work.

2 Errors or omissions in the use of the chosen building materials are so numerous that they are distracting to the viewer.

1 Errors or omissions in standard building practices are serious enough and frequent enough to interfere with meaning.

Graphic Presentation

4 The project is presented in a complete and compelling manner.

3 The project is compelling but incomplete.

2 Required drawings are missing, and the presented work is not legible due to the lightness of the drawings or the haphazard method of presentation.

1 Little effort was invested in the graphic communication of the assigned project.

* * * *

Rubric for Scientific Experiment in Biology Capstone Course, by Virginia Johnson Anderson, Towson University, Towson, MD

Assignment: Semester-long assignment to design an original experiment, carry it out, and write it up in scientific report format. Students are to determine which of two brands of a commercial product (e.g. two brands of popcorn) are Abest.@ They must base their judgment on at least four experimental factors (e.g. A% of kernels popped@ is an experimental factor. Price is not, because it is written on the package).

Title

5 - Is appropriate in tone and structure to science journal; contains necessary descriptors, brand names, and allows reader to anticipate design.
4 - Is appropriate in tone and structure to science journal; most descriptors present; identifies function of experimentation, suggests design, but lacks brand names.
3 - Identifies function, brand name, but does not allow reader to anticipate design.
2 - Identifies function or brand name, but not both; lacks design information or is misleading
1 - Is patterned after another discipline or missing.

Introduction

5 - Clearly identifies the purpose of the research; identifies interested audiences(s); adopts an appropriate tone.
4 - Clearly identifies the purpose of the research; identifies interested audience(s).
3 - Clearly identifies the purpose of the research.
2 - Purpose present in Introduction, but must be identified by reader.
1 - Fails to identify the purpose of the research.

Scientific Format Demands

5 - All material placed in the correct sections; organized logically within each section; runs parallel among different sections.
4 - All material placed in correct sections; organized logically within sections, but may lack parallelism among sections.
3 - Material place is right sections but not well organized within the sections; disregards parallelism.
2 - Some materials are placed in the wrong sections or are not adequately organized wherever they are placed.
1 - Material placed in wrong sections or not sectioned; poorly organized wherever placed.

Materials and Methods Section

5 - Contains effective, quantifiable, concisely-organized information that allows the experiment to be replicated; is written so that all information inherent to the document can be related back to this section; identifies sources of all data to be collected; identifies sequential information in an appropriate chronology; does not contain unnecessary, wordy descriptions of procedures.
4 - As above, but contains unnecessary information, and/or wordy descriptions within the section.
3 - Presents an experiment that is definitely replicable; all information in document may be

related to this section; however, fails to identify some sources of data and/or presents sequential information in a disorganized, difficult pattern.

2- Presents an experiment that is marginally replicable; parts of the basic design must be inferred by the reader; procedures not quantitatively described; some information in Results or Conclusions cannot be anticipated by reading the Methods and Materials section.

1 - Describes the experiment so poorly or in such a nonscientific way that is cannot be replicated.

Non-experimental Information

5 - Student researches and includes price and other non-experimental information that would be expected to be significant to the audience in determining the better product, or specifically states non-experimental factors excluded by design; interjects these at appropriate positions in text and/or develops a weighted rating scale; integrates non-experimental information in the Conclusions.

4 - Student acts as above, but is somewhat less effective in developing the significance of the non-experimental information.

3 - Student introduces price and other non-experimental information, but does not integrate them into Conclusions.

2 - Student researches and includes price effectively; does not include or specifically exclude other non-experimental information.

1 - Student considers price and/or other non-experimental variables as research variables; fails to identify the significance of these factors to the research.

Designing an Experiment

5 - Student selects experimental factors that are appropriate to the research purpose and audience; measures adequate aspects of these selected factors; establishes discrete subgroups for which data significance may vary; student demonstrates an ability to eliminate bias from the design and bias-ridden statements from the research; student selects appropriate sample size, equivalent groups, and stastitics; student designs a superior experiment.

4 - As above, but student designs an adequate experiment.

3 - Student selects experimental factors that are appropriate to the research purpose and audience; measures adequate aspects of these selected factors; establishes discrete subgroups for which data significance may vary; research is weakened by bias OR by sample size of less than 10.

2 - As above, but research is weakened by bias AND inappropriate sample size

1 - Student designs a poor experiment.

Defining Operationally

5 - Student constructs a stated comprehensive operational definition and well-developed specific operational definitions.

4 - Student constructs an implied comprehensive operational definition and well-developed specific operational definitions.

3 - Student constructs an implied comprehensive operational definition (possible less clear) and some specific operational definitions.

2 - Student constructs specific operational definitions, but fails to construct a comprehensive definition.
1 - Student lacks understanding of operation definition.

Controlling Variables

5 - Student demonstrates, by written statement, the ability to control variables by experimental control and by randomization; student refers to, or implies, factors to be disregarded by reference to pilot or experience; superior overall control of variables.
4 - As above, but student demonstrates an adequate control of variables.
3 - Student demonstrates the ability to control important variables experimentally; Methods and Materials section does not indicate knowledge of randomization and/or selected disregard of variables.
2 - Student demonstrates the ability to control some, but not all, of the important variables experimentally.
1 - Student demonstrates a lack of understanding about controlling variables.

Collecting Data and Communicating Results

5 - Student selects quantifiable experimental factors and/or defines and establishes quantitative units of comparison; measures the quantifiable factors and/or units in appropriate quantities or intervals; student selects appropriate statistical information to be utilized in the results; when effective, student displays results in graphs with correctly labeled axes; data are presented to the reader in text as well as graphic forms; tables or graphs have self-contained headings.
4 - As 5 above, but the student did not prepare self-contained headings for tables or graphs.
3 - As 4 above, but data reported in graphs or tables contain materials that are irrelevant. and/or not statistically appropriate.
2 - Student selects quantifiable experimental factors and/or defines and establishes quantitative units of comparison; fails to select appropriate quantities or intervals and/or fails to display information graphically when appropriate.
1 - Student does not select, collect, and/or communicate quantifiable results.

Interpreting Data: Drawing Conclusions/Implications

5 - Student summarizes the purpose and findings of the research; student draws inferences that are consistent with the data and scientific reasoning and relates these to interested audiences; student explains expected results and offers explanations and/or suggestions for further research for unexpected results; student presents data honestly, distinguishes between fact and implication, and avoids overgeneralizing; student organizes non-experimental information to support conclusion; student accepts or rejects the hypothesis.
4 - As 5 above, but student does not accept or reject the hypothesis.
3 - As 4 above, but the student overgeneralizes and/or fails to organize non-experimental information to support conclusions.
2 - Student summarizes the purpose and findings of the research; student explains expected results, but ignores unexpected results.
1 - Student may or may not summarize the results, but fails to interpret their significance to interested audiences.

Student Scores for Science Reports, Before and After Anderson Made Pedagogical Changes

Trait	Year 1	Year 2
Title	2.95	3.22
Introduction	3.18	3.64
Scientific Format	3.09	3.32
Methods and Materials	3.00	3.55
Non-Experimental Info	3.18	3.50
Designing the Experiment	2.68	3.32
Defining Operationally	2.68	3.50
Controlling Variables	2.73	3.18
Collecting Data	2.86	3.36
Interpreting Data	2.90	3.59
Overall	2.93	3.42

Rubric for Employers to Evaluate Student Teams Working in a Firm

Lawrence D. Fredendall, Management, Clemson University

Assignment: Student teams work with a firm to identify problems and offer recommendations. To be completed by members of the business firms in which student teams work, this sheet is given to students and to members of the firm from the very beginning of the project.

Team's Customer Satisfaction Skills		
Punctuality Some team members missed appointments or did not return phone calls. 0 1 2 3	All team members arrived on time for appointment and returned all phone calls promptly 4 5 6 7	All team members were always early. 8 9 10
Courtesy Some team members were not respectful of some firm employees 0 1 2 3	All team members were always courteous and respectful of all firm employees 4 5 6 7	All employees felt that the team members were very respectful and courteous and fully elicited their ideas. 8 9 10
Appearance Sometimes some team members were inappropriately dressed. 0 1 2 3	All team members were always appropriately dressed. 4 5 6 7	All team members adjusted their attire to match the attire used in our firm. 8 9 10
Enthusiasm Some team members did not seem interested in the project. 0 1 2 3	All team members appeared enthusiastic and eager to work on the project 4 5 6 7	The enthusiasm of the team members to complete the project was contagious and inspired others at our firm. 8 9 10
Communication Some team members did not communicate clearly during meetings or phone calls. 0 1 2 3	The team members always communicated clearly withy employees during meetings and phone calls. 4 5 6 7	The team members always made an extra effort to make sure they understood us and that we understood them during meetings and phone calls. 8 9 10
Team's Project Management Skills		
Plan Awareness		

No team member ever presented a plan to the firm about how to complete the project. 0 1 2 3	The team presented a plan but some team members did not seem to follow it. 4 5 6 7	All team members seemed to be aware of the plan and following it. 8 9 10
Problem Definition The team's definition of the problem was absent or vague. 0 1 2 3	The problem was clearly defined. Data were provided measuring the scope of the problem. 4 5 6 7	The problem's importance and relationship to the firm's goals were clearly stated. 8 9 10
Plan Feasibility The plan that was presented was not feasible. 0 1 2 3	The plan that was presented was feasible but needed improvement 4 5 6 7	The plan was feasible and was regularly updated as necessary during the project. 8 9 10
Plan Presentation A written plan was not presented. 0 1 2 3	A clear plan with a Gannt chart was presented. 4 5 6 7	The team was able to explain the relation of its plan to the firm's goals. 8 9 10
Team's Data Analysis		
Data Collection The team did not use any apparent method to determine which data to gather. 0 1 2 3	The data were gathered in a systematic manner. 4 5 6 7	The team was able to explain clearly why it collected certain data and did not collect other data. 8 9 10
Collection Method The team=s data collection method was haphazard and random. 0 1 2 3	The team had a clear plan they followed to collect the data. 4 5 6 7	The data collection methods simplified the data analysis. 8 9 10
Analysis Tools The team used no tools to analyze the data, or the tools seemed to be randomly selected. 0 1 2 3	The team used all the appropriate tools for data analysis. 4 5 6 7	The team fully explained why it selected certain tools and did not use others for data analysis. 8 9 10
Results Analysis The team did no e3valuation of the validity of its data analysis results.	The team validated its results by checking with the appropriate staff for their insight.	The team validated its results by conducting a short experiment.

0 1 2 3	4 5 6 7	8 9 10
Team's Recommendations		
Clarity The team had no recommendations, or they were not understandable. 0 1 2 3	The team=s recommendations were reasonable given the problem examined. 4 5 6 7	The recommendations logically emerged from the problem statement and data analysis. 8 9 10
Impact The impact of implementing the recommendation was not examined or was completely wrong. 0 1 2 3	The recommendations are specific enough to serve as the basis for decisions by management 4 5 6 7	The recommendations include an implementation plan that is feasible to implement. 8 9 10
Qualities of the Team's Paper		
Executive Summary There was no executive summary. 0 1 2 3	The executive summary was well written and captured key goals, problems, analysis, steps, and recommendations. 4 5 6 7	The executive summary is as good as those usually presented in our firm. 8 9 10
Organization The paper is difficult to follow. 0 1 2 3	The paper is easy to follow and read. 4 5 6 7	All relationships among ideas are clearly expressed by the sentence structures and word choice. 8 9 10
Writing Style The paper is sloppy, has no clear direction, and looks as if it were written by several people. 0 1 2 3	The format is appropriate with correct spelling, good grammar, good punctuation, and appropriate transition sentences. 4 5 6 7	The paper is well written and is appropriate for presentation in the firm. 8 9 10

Team Members' Personal Skills		
Self-Confidence Some team members' mannerisms made them look as if they were not confident of their abilities. 0 1 2 3	All the team members always seemed confident. 4 5 6 7	All team members were confident and would be able to lead in this organization. 8 9 10
Knowledge Some team members did not seem to understand what they were doing. 0 1 2 3	All team members seemed to have adequate knowledge or ability to learn the necessary material. 4 5 6 7	All team members were proactive about identifying skills they needed and obtaining them in advance. 8 9 10
Reliability Some team members did not follow through with their commitments. 0 1 2 3	All team members fulfilled all commitments they made to staff here. 4 5 6 7	The work the team completed more than met my expectations. 8 9 10
Your Satisfaction with the Product		
Project Completion The team did not do a reasonable amount of work on the project. 0 1 2 3	The team completed a reasonable amount of work on the project 4 5 6 7	The work the team completed more than met my expectations. 8 9 10
Project Recommendations The recommendations provide no insight. 0 1 2 3	The recommendations are useful and will be examined in detail by our firm. 4 5 6 7	The recommendations will be implemented in full or in part. 8 9 10
Satisfaction: **We are not satisfied.** **0 1 2 3**	**We are completely satisfied.** **4 5 6 7**	**We are more than satisfied, we are delighted with the team's work!** **8 9 10**

Your name: _____

Would you sponsor another team project? _____

What do you recommend that the department do to improve the project?

(From Walvoord and Anderson, *Effective Grading: A Tool for Learning and* Assessment in College 2nd ed., 2010, pp. 212-216).

Analysis for Mathematics Class

Learning Goal: Solve and demonstrate an understanding of a dual problem and its meaning.

	Exam #2 Q 14	Exam #2 Q 20	Home-work #8	Final Exam Q 7	Mean for Each Individual Student
Student#1	75	64	63	80	70
Student#2	64	48	44	74	56
Student #3	91	79	89	85	86
And So On					
Mean for Each Question/ Problem	76	64	65	80	71

(From Walvoord and Anderson, *Effective Grading: A Tool for Learning and Assessment in College*, 2nd ed., 2010, p. 220-221).

Rubric for Statistical Investigation Course, Used for Departmental Discussion of Students' "Critical Thinking and Quantitative Reasoning"

William Marsh, Raymond Walters College of the University of Cincinnati (two-year, open admissions)

Assignment: Conduct a statistical investigation, including identifying a problem, developing an hypothesis, obtaining a random sample, measuring variables, analyzing data, and presenting conclusions. The rating sheet below contains only three of the factors that affect the grade. These factors were separately and carefully analyzed and shared with colleagues, to identify progress on college=s gen-ed goal of Acritical thinking and quantitative reasoning.@

Methodology

5 Correct statement of problem with accompanying null and alternative hypothesis.
Well-defined population with appropriate random sample.
Data collection is free of bias and contamination

4 One part of the 5 level is not as high as it should be, and overall the quality of the methodology is just slightly lower than the highest level.

3 All the necessary parts of the methodology are present, but the quality level is only adequate

2 There is a serious deficit in the methodology in the form of poorly performed tasks or some portions simply omitted. The results are compromised and may be unusable.

1 There is a total failure to understand the task. The results will be invalidated because the methodology is erroneous.

Data Analysis

5 Uses appropriate statistical test with correct results
Provides an interval estimation of the values of the parameter.
Includes a hypothesis test and gives accompanying *p*-level stating probability of type 1 error.

4 Provides most of level 5, but one of the characteristics is missing or unclear.

3 Uses correct statistical test, but estimation or interpretation is omitted.

2 Uses correct statistical tests, but there are errors in calculation and other work.

1 Incorrect statistical test. Data are erroneous or missing.

Conclusion

5 A complete presentation of results with conclusions, estimations, and *p*-levels for type 1 errors. Identifies possible threats to the study and also any areas in need of additional study.

4 As in 5, but one characteristic could be improved.

3 The presentation is only adequate. Conciseness and clarity are lacking.

2 Conclusions are vague and inaccurate. There has been an effort by the student, but there is an obvious lack of understanding and thoroughness.

1 A failure to make the necessary conclusions and implications

Student Self-Report on Discussion in Literature Class

Note: These self-reports are used to determine part of the grade for the course (based on percentage of class sessions for which the student has received credit by checking all the items on this list)

Name_____ Date_____

To receive credit for this class session, you must honestly be able to check all of the following:

___ 1. I made every effort to come to class on time (lateness that was not your fault is excusedBe.g. the previous professor held the class overtime. Oversleeping is NOT excused)

___ 2. I had read all the assigned works carefully before I came

___ 3. I brought to class my written notes on the works we read

___ 4. I had prepared for class by being well-rested, well-nourished, alert, and mentally ready

___ 5. I contributed at least once to class discussion today

___ 6. I did not too heavily dominate the class, but gave others a chance to contribute

___ 7. I listened actively to others at all times, and I showed by my face and body posture that I was listening

___ 8. My goal was to contribute effectively to the high quality of the GROUP's discussion and learning, rather than just to demonstrate my own excellence. As in team sports, I played for the well-being of the team

___ 9. My contributions tended to do the following:

- Start the group on a rich, productive track by posing a question or position that is not too obvious, but richly debatable, dealing with a significant question or aspect of the work
- Respond to others' contributions by:
    - Asking for clarification or evidence
    - Helping to support the point by contributing evidence and examples
    - Linking the point creatively to other readings or issues
    - Pointing out unspoken assumptions behind the other person's point
    - Raising a problem or complication for the other person's point
    - Synthesizing or pulling together the discussion so far
    - Stating a different point of view and backing it up
    - Talking about how this literature has helped develop my own thoughts

___ 10. When I had a genuine question that seemed stupid or simple, I asked it anyway

The following questions do not count for credit, but they help me to assess how well the discussions are going and how we can improve:

11. I thought the discussion today went

___ extremely well ___very well ___quite well ___not at all well

Why did you answer as you did?

12. What could the professor have done to make the discussion more successful?

13. What could I, the student, have done to make the discussion more successful?

Student Self-Checksheet for Essay of Literary Analysis

This sheet must be included at the front of your essay. I will not accept any essays without the checksheet fully completed.

___ I have read the poems at least three times

I have spent _____ hours on research and writing this paper

___ I have had at least one other person read the paper and offer suggestions

___ I have reread the paper at least twice for grammar, punctuation, and spelling

___ I have used the spellcheck

___ The paper is presented in the format described on p. 2 of the assignment

___ A reader of my paper could tell what my thesis is

___ My thesis is a challenging, yet defensible, interpretation of some aspect of the poems

___ etc. [self-check items related to criteria and standards for the paper]

If I had more time to spend on this paper, I would: _____

_____

_____

(Adapted from Barbara E. Walvoord and Virginia J. Anderson, *Effective Grading: A Tool for Learning and Assessment in College*. 2nd ed. Jossey-Bass, 2010, p. 68.)

Rubric for Scoring Essays of Literary Analysis

5	4	3	2	1
Thesis: The thesis of the paper is clear, complex, and challenging. It does not merely state the obvious or exactly repeat others' viewpoints, but creatively and thoughtfully opens up our thinking about the work.	The thesis is both clear and reasonably complex.	The thesis of the paper is clear. It takes a stand on a debatable issue, though the thesis may be unimaginative, largely a recapitulation of readings and class discussion, and/or fairly obvious.	Thesis is relevant to the assignment. It is discernible, but the reader has to work to understand it.	Thesis is irrelevant to the assignment and/or not discernible.
Complexity and Originality: The essay is unusually thoughtful, deep, creative, and far-reaching in its analysis. The writer explores the subject from various points of view, acknowledges alternative interpretations and varied literary critical lenses, and recognizes the complexity of issues in literature and in life. Other works we have read and ideas we have discussed are integrated as relevant. The essay shows a curious mind at work.	The essay is thoughtful and extensive in its analysis. It acknowledges alternative interpretations and recognizes complexity in literature and in life. Some other works are integrated as relevant.	The writer goes somewhat beyond merely paraphrasing someone else=s point of view or repeating what was discussed in class. AND/OR the essay does not integrate other relevant works we have read.	Writer moves only marginally beyond merely paraphrasing someone else=s point of view or repeats what was discussed in class.	The paper is mere paraphrase or repetition.
Organization and Coherence: The reader feels that the writer is in control of the direction and organization of the essay. The essay follows a logical line of	As for "5" but sub-points may not be fashioned to open up the topic in the most	The reader feels that the writer is in control of the direction and	The essay has some discernible main points.	The essay has no discernible plan of organization

5	4	3	2	1
reasoning to support its thesis and to deal with counter-evidence and alternative viewpoints. Sub-points are fashioned so as to open up the topic in the most effective way.	effective way.	organization of the essay most of the time. The essay generally follows a logical line of reasoning to support its thesis.		.
Evidence, Support: The writer's claims and interpretations are backed with evidence from the literature, works we have read, secondary sources, and sensible reasoning. The writer assumes the reader has read the work and does not need the plot repeated, but the writer refers richly and often to the events and words of the novel to support his/her points.	As for "5" but the writer may occasionally drop into mere plot summary	The writer's claims and interpretations about the works are generally backed with at least some evidence from the works AND/OR the writer includes significant passages that are mere plot summary.	The writer's claims are only sometimes backed with evidence AND/OR large sections of the paper are mere plot summary.	The paper is primarily plot summary.
Style: The language is clear, precise, and elegant. It achieves a scholarly tone without sounding pompous. It is the authentic voice of a curious mind at work, talking to other readers of the novel.	The language is clear and precise.	The language is understandable throughout.	The language is sometimes confusing. Sentences do not track.	The language is often confusing. Sentences and paragraphs do not track.
Sources: The essay integrates secondary sources smoothly. It quotes when the exact words of another author are important,	As for "5" but sources may be quoted with no contextual	The essay does not just string together secondary	The essay strings together secondary	There is no use of secondary sources.

5	4	3	2	1
and otherwise paraphrases. It does not just string together secondary sources, but uses them to support the writer's own thinking. Each source is identified in the text, with some statement about its author; there are no quotes just stuck into the text without explanation.	explanation AND/OR writer may use direct quotation and paraphrase in less than optimal ways.	sources, but uses them to support the writer's own thinking.	sources.	
Grammar, Punctuation: There are no discernible departures from Standard Edited Written English (ESWE)	There are a few departures from ESWE	There are no more than an average of 2 departures from ESWE per page in the critical areas listed below.	There are more than 2.	Some portion of the essay is impossible to read because of departures from ESWE.

Critical Areas:
-Spelling or typo
-Sentence boundary punctuation (run-ons, comma splices, fused sentences, fragments)
-Use of apostrophe, -s, and -es
-Pronoun forms
-Pronoun agreement, and providing antecedents for pronouns
-Verb forms and subject-verb agreement
-Use of gender-neutral language
-Capitalization of proper nouns and of first words in the sentence

Rubric for Journals in English Literature

Assignment: Journals are to record students' questions about the literature and to consider how the literature relates to their own lives and values.
To achieve a C or above, the journal must be handed in on time, must contain the required number of daily entries, and each entry must be at least 250 words.
The faculty member collects and grades the journal entries periodically throughout the course; thus each grade reflects a number of journal entries.
The faculty member grades the journal entries on only two criteria: posing questions and connecting the literature to the students' own lives and values.

Posing Questions

1. The journal entries do not pose any questions
2. The journal entries pose only factual or obvious questions
3. The journal entries pose a few questions that address larger issues of the work of literature, beyond what is factual or obvious.
4. The journal entries pose a number of questions that address larger issues.
5. The journal entries pose a number of questions that address larger issues, and when a question is posed, the student almost always muses in creative ways about the question, extending it to related areas, bringing in other readings, noting underlying assumptions, or in other ways deepening the inquiry, showing a curious mind at work.

Connecting literature to students' own lives and values

1. Journal entries merely summarizes the literature OR merely reflect on the student's own life and values
2. Journal entries summarize the literature AND reflect on the student's life and values, but make little or no explicit connection between the two
3. Entries use the literature in a very simple way to draw "lessons" to apply to the student's own life
4. A few entries make thoughtful links between the literature and the student's own life and values. They use the literature as a vehicle for pushing and exploring the student's own life and values. They recognize the complexity both of the literary work and of life and values.
5. All of the entries do as in 4 above. The students' musings are rich and deep, showing a thoughtful, reflective mind at work.

Appendix B: Student Survey on Teaching Methods

Madan Batra, Indiana University of Pennsylvania
Course: International Marketing
Assignment: In groups, students complete a project in which they research and propose export feasibility for a particular product to a particular country. The semester-long project requires collecting information from various organizations such as libraries, domestic governmental agencies, consulting firms, export intermediaries, shipping companies, and international agencies. Then, the information is to be analyzed and presented in the form of a professional report for a hypothetical business executive.

Questionnaire administered to all students in class at the end of the semester:

Section A: Tools and Techniques

Please use the scale shown below to fill in the blanks at the end of statements:
Write 4 if you strongly agree with the statement
3 if you agree
2 if you disagree
1 if you Astrongly disagree
9 if you are unable to judge

1. Project Outline
You were provided an outline of the project along with the syllabus during the first week of the semester.
This tool:

b. Contributed substantially to the overall quality of the project _____
c. Enabled every group member to pull his/her fair share of the workload to the project__
d. Assisted group members to contribute innovative ideas _____
e. Contributed to the timely completion of the project _____
f. Helped me to become involved in the project _____
g. Helped me to analyze the nature of the project _____
h. Helped the group members pace their work _____
i. Is recommended for similar group projects offered by the instructor in the future _____
j. Contributed substantially to the overall learning from the course_____

2. Initial Intensive Guidance
The instructor spent considerable time (3-4 class sessions) in the beginning of the semester to explain various sources of information for the project, tactics to be pursued for gathering relevant information, and methods to handle likely problems.
This technique:
[choices as #1]

3. Work Allocation Sheet (Information-Gathering State)
By the third week of the semester, you were asked to allocate work (information-gathering part) required to complete the project among the team members. Your group submitted a work allocation sheet.

This technique:
[choices as #1]

4. Internalization of the Project Outline
In the early semester you were given an exercise to identify a minimum of 25 questions that your project would answer.
This technique:
[choices as #1]

5. Written Progress Report
During the mid-semester, your group was asked to submit a progress report indicating every team member=s efforts and the extent of their success in gathering information. You were then required to discuss the progress report with the instructor.
[choices as #1]

6. Assistance from Peer Group
Toward the latter part of the semester, you were asked to submit one-to-two-page summary of two major sectionsCenvironment analysis and marketing strategyCof the project. The summary was reviewed by another class team who provided you their feedback and additional suggestions.
[choices as #1]

7. First Draft of the Project
Toward the end of the semester, you were given an opportunity to submit an initial draft of the project. The draft was returned to you with the instructor=s reactions and comments.
[choices as #1]

8. Oral Presentation
Toward the end of the semester, you were given an opportunity to make an oral presentation to the class. The observations of the instructor and the class could be addressed in the final revised project.
[choices as #1]

9. Personal Journal
Each group member was required to maintain and submit a personal journal indicating the nature of efforts, quality of learning, and number of hour spent on the project.
[choices as #1]

Section B: Open-Ended Suggestions

Please specify any other techniques that would improve the individual contribution and equity in group projects:

_____

Section C: Other Information

1. Are you (a) a junior____ (b) senior_____
2. Have you been involved in other group projects? Yes ____ (b) No _____

If yes, how does the learning experience from this course project compare to other group projects? Check one of the following: Better_____ About the same_____Worse _____

Compared to other group projects, did the group members in your project put in a fair share of the work? Yes____ No_____

3. What is your major? _____

Appendix C: Using Classroom Work for Departmental Assessment

Example: Department of Biology

Majors

(Note: similar matrices would be produced for general-education and graduate programs in the department)

Learning Goals for Majors

1. Describe and apply basic biological information and concepts
2. Conduct original biological research and report results orally and in writing to scientific audiences
3. Apply ethical principles of the discipline in regard to human and animal subjects, environmental protection, use of sources, and collaboration with colleagues

Website and/or other avenues by which these are readily available to students, prospective students, and faculty_____

Measures	*Goals*	*Use of the information*
Standardized test given to all seniors AND Final exams of three basic biology courses required of all majors	1	Data are reported to the department annually by the standardized exam committee and the instructors of the three basic courses. The department supports and encourages the instructors, takes any appropriate department-level actions, and reports meeting outcomes to dean or other body which has resources to address problems, and to those composing reports for accreditation or other external audiences. All data are reviewed as part of program review every seven years.
In senior capstone course, students complete an original scientific experiment, write it up in scientific report format, and also make an oral report to the class. The instructor(s) use explicit criteria to evaluate student work.	1, 2, 3	Annually, the senior capstone instructor(s) share students' scores with the department. The department takes action as above.
Alumni survey asks how well alums thought they learned to conduct and communicate scientific research		Data reviewed annually by department for action, as above
Sample of regional employers gathered two years ago to reflect how well our majors are doing and give advice to dept.	1, 2, 3	Data reviewed annually by department for action, as above

Examples of Changes Based on Assessment

- Two years ago, our advisory council of regional employers recommended that our majors had a good level of biological knowledge but needed stronger skills in actually conducting biological research. Data from the alumni survey also mentioned this problem. We instituted the required capstone course, which requires students to conduct original scientific research, and we asked the instructor(s) annually to report to the department on student research and communication skills demonstrated by their capstone projects. In three years, when several cohorts of majors have passed through the capstone, we will again survey alumni and employers to see whether student skills have increased, and we will review data from all years of the capstone projects.
- The capstone instructor(s) last year reported low graphing skills in seniors; we arranged with the mathematics department for greater emphasis on graphing and better assessment of graphing, in the required math course. The capstone instructor(s) will report next year whether graphing skills are stronger. Prof. Brody is currently developing a rubric to assess graphing skills more systematically in the capstone.

Recommendations for Improving Assessment Processes

- Standardized national test is costly and time-consuming to administer, has low student motivation in its current format, and results are difficult to map to our curriculum. Committee should review usefulness of the national test.

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