

AGENDA
Cal Poly Quantitative Reasoning Learning Community 2015-16
April 13, 2016
9:10 am to 10:00 am (33-285)

Membership

Jack Phelan/Acad Prog; Mary Pedersen/Acad Prog; Bruno Giberti/Architecture; CAED; Thomas Fowler/Architecture; Gary Clay/Landscape Architecture, Susan Mackenzie/RPTA, Michael Latner/Political Science; Kevin Ross/Statistics; Todd Grundmeyer/Mathematics; Fred DePiero/CENG; Russ White/Library; Gary D. Laver/Psychology; CLA.

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**Meeting Notes**

1. Review [Meeting Notes Feb 24, 2016 \(PDF\)](#)

(1) Notes are approved.

2. Updates on QR assignments

(1) MATH 112 (launched spring quarter) [Part 1 \(PDF\)](#); [Part 2 \(PDF\)](#)

(a) Part 1 of the assignment is launched. Jack P. appreciates the efforts from Todd G. and instructor of the course Saba Germani. The sections total 70 students. Part 2 will be launched Week 8. There are 4 parts to the essay. The assignment requires students to use the numerical illustration (representation) from Part I and incorporate that in the paper. Academic Programs is assisting the instructor appointing graders to grade the assignments. Faculty will evaluate the assignments in summer.

(2) ECON 222

(a) This course is taught by Solina Lindahl. She will embed 4 questions following the QR rubric into mid-term and final exams. 230 students are enrolled. Solina L. may require grading assistance as well. All QR rubric dimensions will be covered by her exams.

(3) STATS

(a) Kevin Ross is willing to incorporate (embed) the QR rubric traits into exam questions in a class he's currently teaching. This class has 130 students.

3. Identifying QR dimensions in Gary Laver's PSY 202 assignment

(1) [QR Rubric \(PDF\)](#)

(2) [PSY 202 Assignment and Prompt \(PDF\)](#)

(a) PSY 202 was not evaluated according to the current QR rubric.

(b) Should the assessment be carried out simultaneously with grading? Grading has different goals. Assessment should be disruptive to the exercise. Other factors such as grading inflation exist. So the assesment

evaluation is a separate exercise. Grading assistance is not a long term plan. The assignments were graded at the end of Winter quarter.

- (c) The grading rubric is not as complicated as the assessment rubric.
- (d) The graders who will be grading the assignments should be trained to understand what to look for. To grade the PSY 202 assignment the graders need to understand some of the contextual terms.
- (e) The current rubric contains three levels – Benchmark, Milestone and Capstone. Students will be assessed as, how many points they receive. The committee must decide on whether there should be 3 levels instead of 4. There are often milestone 1, and milestone 2.
- (f) Benchmark requirements are required to be defined. Separation is necessary by some form of definition of the benchmark from above in how students are separating from each other needs to be established. Initially it was thought to introduce 4 levels for 4 years but it should be determined whether this assessment will be operated vertically (performance across levels) or horizontally (performance at one level – i.e. senior level).
- (g) There is a relation between both sides of an argument that can be included in the assignment. The way quantitative reasoning is scaffolded, apart from critiquing others arguments, the students can move into the higher levels in developing their own arguments. The best option in adapting assignments to be have all the traits. But evaluations would reflect that certain traits were not present or measured.
- (h) In case of PSY 202 assignment, there is no way students can begin to approach or find out problems with the data presented. They only can necessarily critique the presented argument.
- (i) It was obvious that due to the large sample size the assignment revealed a number of students with healthy statistical background. The diversity of the analysis is enormous due to the fact that the class is a collection of diversified students with backgrounds from different disciplines.
- (j) Those who showed qualitatively better analytical capabilities, most of them have taken Statistics. Academic records could be checked to find out if there is any relation between the student background and superior quantitative analysis capability developed in other classes.
- (k) There is no plan for assessing milestones based on points. The term Benchmark is confusing, “Foundational Level” is what we are talking about.
- (l) While evaluating MATH and ECON assignments, should it be done separately? When assessing critical reasoning, it was possible to go back and forth, between different majors. Quantitative reasoning doesn’t work that way, the range of options are more or less defined. It may not be possible to mix this up in the evaluation process as in writing and critical thinking.
- (m) Wording is required in the current rubric to define Milestone and Foundational achievements.
- (n) When the assessments are done simultaneously with different assignments, reading through papers we can compare to get a bigger picture. Usually when grading, each problem is graded at a time. It will be hard for faculty evaluators to switch between assignments because the assignments are based on different contexts.

- (o) Problem solving as a goal is implied, what seems to be missing in the QR rubric – the notion of alternative solutions, whatever the committee wants to call it, that needs to be addressed and needs to be entertained. Alternative solutions, that part of problem solving is missing in the current rubric. In a professional context, the engineers and architects constantly confront this issue; e.g. when designing a structural member, what are the tradeoffs, what are the other options in terms of sizing, costs, aesthetics, materiality. Architecture is full of these situations. Why is it done this way, not the other way around? Constructs of this argument needs to be reinstalled on the rubric.
- (p) At what level does introductory exposure to this argument occur? Part of this argument is to generate options, and beginners do not have enough knowledge to create options.
- (q) How an argumentation is developed in favor of a singular answer, it takes different forms in different disciplines. Preferring and logically establishing what should be done instead of other options. That reasoning may be more or less quantitative, making the appropriate balance of all the available options and resources. The beginners should start to understand and response sensitively on somebody else’s arguments. And this sort of argument and logical deduction occurs in regular life as well.
- (r) The committee is using the term problem solving as a system which is very polytechnic type of approach, many of the disciplines might use the term question instead of problem.
- (s) The committee asks Gary L. to choose 3 papers which show competence and 3 papers which shows incompetence from PSY 202 assignments, to concretize this argument. Gary L. agrees. Gary advises to look for those papers which have scored 18 / 19 to look for competent work; and 15/ 16 for incompetent work. The very best papers will not be selected.
- (t) The committee agrees to start to fill the rubric out by experience. Todd G. advises to establish a foundational level first and find out if the middle/ milestone level is required.

(3) [PSY 202 Student Assignment Sample \(PDF\)](#)

- (a) This student described the working figures verbally, lower half of the paragraph is an explanation of the quantitative information. The students were asked to answer the final question, which was a self-representation based on the arguments provided on the article. The essay is relatively articulated. This assignment represents one of the upper quartile. In many of the other submissions plausible mistakes are found. Not of the statistical nature but mostly articulated prose.
- (b) 3 of the 4 criteria seem to be present in this assignment. Can we read analysis in this assignment?

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Spring 2016 Schedule

Wednesday 4/13 9:10 am to 10:00am 33-285

Wednesday 4/27 9:10 am to 10:00am 33-285

Wednesday 5/11 9:10 am to 10:00am 33-285

Wednesday 5/25 9:10 am to 10:00am 33-285