ILO Quantitative Reasoning (QR) Assessment and Calibration Training
Final 5-14-20

8-24-20 This is the calibration training that QR faculty received by a trained faculty colleague on 5-14-20 to assess student work for assignments from an upper division course assignment in the Fall of 2019 or Spring of 2020 aligned to the ILO Quantitative Reasoning rubric. Training was completed remotely by Zoom during COVID-19. Some sensitive/confidential information has been covered, and the links for internal confidential information have been disabled.

Agenda

- **Introduction**
  - Welcome
  - Introductions
  - Goals and Agenda
  - Why we are doing this work
  - How we are working together today
- **Orientation to ILO QR Assessment**
  - Some fundamentals on assessment and outcomes
  - How ILO assessment is different from grading
  - Some fundamentals on ILO rubrics
  - Review ILO Quantitative Reasoning rubric
  - Overview of calibration
  - Practice assessment using ILO QR rubric
- **Assess Student Work**
- First demonstration 2) Complete each step as a group to get started
  - Log onto Blackboard Outcomes: the electronic assessment platform
  - Assess 10 student samples from your course assignment using the QR rubric and the Blackboard Outcomes assessment platform
- **Complete survey**
  - Provide feedback on student learning and use of the QR rubric
- **Next steps**

Introduction

- **Welcome!** We are glad you are here and hope to make the afternoon day collegial and interesting for you.
- **Introductions:** Anything you wish to share
- **Goal:** Provide you with the information, tools, and support to complete the assessment of student work samples from a course assignment using the ILO rubric for quantitative reasoning and the Blackboard Outcomes electronic learning assessment platform.
- **Agenda:** Brief review of broad topics
- **Why we are still assessing under these circumstances:** The primary goal of academic assessment is for faculty to gather relevant information about student performance, analyze the results, and make decisions to improve student learning. While national assessment groups agree that the results are not likely to reflect students' normal capacity to demonstrate learning, there is "just-in-time" data, information, and reflection that can help with faculty "just-in-time" decision making. Additionally, for full transparency - WASC will support our local decisions, and has also told us to keep moving forward assessing "Core competencies" - written communication, quantitative reasoning, critical thinking, oral communication, and information literacy. So if we did not complete this now, we would complete in the fall.
- **How we are working together today**
    - We will use this document we are in for the introduction and Orientation to ILO QR assessment with links to related documents.
    - This group will remain "together" unless an individual needs to solve a unique issue that may take a few minutes to solve in a breakout room before joining the group again. Once the group is completing their assessments, we will all mute mics to allow concentration and return at 3:45 pm to complete a survey and discuss next steps.
    - Bala and Julie will be double-checking that you are assessing according to the categories your assignment assesses. Please verify (or complete) the categories you are assessing.
    - It may be that some faculty do not complete the assessment by 4:00 which is why the funding was increased. The call can extend for any faculty who are not yet completed at 4:00.

- **Zoom tools we will be using**
    - ○ **Hosts:** Hosts are Bala (main host), Meg, Julie, and Eric
    - ○ **Breakout rooms :** Julie is the only host who can place you in a breakout room with another host as needed to work one-on-one to solve an individual technical problem. Call/text Meg Taggart, Julie Stein, or Bala Rajan.
    - ○ **Chat:** Use Chat feature to respond to the group, ask to be placed in a break room for support with a particular issue, or to to send a personal message to an individual. Danika will monitor group chat and let Julie know if someone needs to go to a breakout room.
    - ○ **Share Screen:** Bala, the main host, will use screen sharing to share documents. In a breakout room to solve a problem, a host or participant can share their screen.
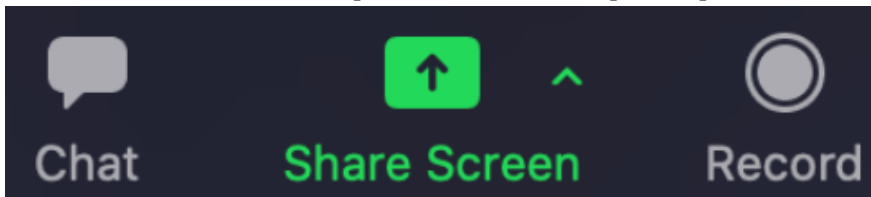
    - ○ **Remote Control:** In a breakout group, faculty may wish to share control of their desktop temporarily with the host to help solve an issue.
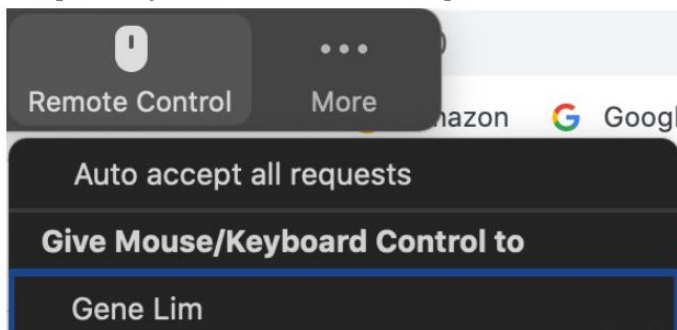
    - ○ **Disconnected from Zoom Call?** If you get disconnected, join the Zoom call again. If still having trouble joining, text Julie Stein at xxx.xxx.xxxx

Orientation to ILO QR Assessment

Some fundamentals on assessment and outcomes

The Purpose of Assessment

The purpose of student learning assessment at California State University East Bay (CSUEB) is to continually improve the quality of our academic and co-curricular programs to ensure that students are achieving our stated outcomes.

Types of Outcomes

Course Student Learning Outcomes (SLOs) are developed by and assessed by the individual faculty member teaching a course. These are sometimes referred to as course objectives. They are the skills and knowledge expected of all students completing the course and are evaluated by the instructor as part of the regular grading process.

Program Learning Outcomes (PLOs) are those outcomes that are expected of every graduate within a specific major or degree program and are focused on mastery and depth of disciplinary knowledge. PLOs are typically associated with the requirements for the major.

General Education Learning Outcomes (GELOs) are those outcomes that are expected of every undergraduate student who graduates from the institution. Because all undergraduates must meet General Education (GE) requirements, CSUEB relies on GE to introduce and practice these skills, such as writing and critical thinking. These skills are further developed and matured in the major.

Institutional Learning Outcomes (ILOs) are those outcomes that are expected of every graduate of the institution, both undergraduate and graduate. These learning outcomes are introduced and practiced in the major, in co-curricular programs and activities, and for undergraduates in General Education. ILOs are closely aligned with General Education requirements.

Who Assesses Outcomes?

Assessment of course *Student Learning Outcomes* is conducted by the individual faculty member, within a course.

Assessment of *Program Learning Outcomes* is the responsibility of program faculty, and the results are reported yearly in the Annual Report Program and through a five-year review cycle to the Committee on Academic Planning and Review (CAPR).

Assessment of *General Education Learning Outcomes* is the responsibility of the General Education Assessment Subcommittee of the Committee on Academic Planning and Review (CAPR). The subcommittee is responsible for developing, revising, and maintaining the GELOs, as well as ILO/GE rubrics and for assessing samples of student work from GE courses.

Assessment of *Institutional Learning Outcomes* is the responsibility of the ILO Subcommittee of the Committee on Academic Planning and Review (CAPR). The subcommittee is responsible for developing, revising, and maintaining the ILOs. It is also responsible for assessing student work in relation to these ILOs. The committee may work with faculty outside of the committee to assist with this task. Educational Effectiveness Services in APS assists with data collection, analysis, and reporting.

How ILO assessment is different from grading

Differences between course grading and ILO assessment using a rubric	
Course Grading	**ILO Assessment**
Goal: evaluate individual student performance and learning, often resulting in a numerical score - or grade.	Goal: measure student learning to analyze and make improvements in student learning at the program or university level.
Scaled differently (letter grade, percentages, credit/no credit)	Common scale
What is included: Grade could also include other factors such as attendance, participation, group work, overall performance in course, timely submission, or following instructions. Other factors may not include measures of learning outcomes. Other factors might not be direct measures of learning.	Includes **only** rubric categories (criteria) for a specific competency. Rubric categories measure Institutional Learning Outcomes. Rubric categories measure direct learning.
High stakes for students	Low stakes for students

Some fundamentals about ILO rubrics

What is a rubric?
A rubric is a faculty developed learning and assessment scoring guide for clarifying expectations of student work. While there are different types of rubrics (e.g. holistic, check-list, descriptive), Cal State East Bay uses a rating scale rubric for ILO and GE assessment which is consistent with the Association of American Colleges and Universities (AAC&U) and many of the other CSUs.   This type of rubric has performance criteria describing the tasks/performance that student work should exhibit to meet learning outcomes and performance rating scales or levels of achievement identifying the levels of quality and associated point value for each performance criteria.

What are criteria?
Criteria are rubric categories or dimensions that should be:
- Distinct without overlapping with another criteria
- Demonstrable in a course assignment
- Observable in an assignment

What are levels of achievement?
Levels of achievement are performance descriptors. Level 4 achievement defines excellent, top level work.

Levels of achievement descriptions:
- Differentiate between levels
- Are clear and understandable to faculty raters
- Use verbs to write performance descriptors
- Have continuity in language throughout levels

Example 1:.4) Consistently 3) Generally 2) Somewhat 1) Minimally
Example 2: 4) Correct 3) Mostly correct 2) Some aspects incorrect 1) Mostly incorrect
Example 3: 4) Always 3) Often 2) Occasionally 1) Rarely or never

Why use rubrics in the assessment of student learning?
- Identifies and describes knowledge, skills, and abilities that demonstrate a competency (e.g. written communication, information literacy).
- Can help increase objectivity and reliability in the assessment of learning outcomes.
- Can help enhance faculty discussions, communication, and transparency of expectations about the most important components of student learning in a program

At what levels can rubrics be used for assessment of student learning?
Course: To evaluate student work demonstrating a particular student learning outcome (SLO) = individual faculty member use in grading virtually any student work such as a paper, portfolio performance, or multimedia product.

Program: To assess selected student work demonstrating a particular program learning outcome (PLO)=program faculty use for curriculum improvement (generally for senior-level work)

General Education To assess selected student work demonstrating a particular general education learning outcome use for curriculum improvement in both lower and upper division work.

Institution: To assess selected student work demonstrating a particular institutional learning outcome (ILO)=university faculty committee use for institution-wide assessment (generally for senior-level work)

Review of ILO Quantitative Reasoning rubric

CSU East Bay ILO Quantitative Reasoning Rubric: Approved by Academic Senate March 19, 2019
Description: Quantitative Reasoning (QR) is competency and comfort in working with numerical data. It involves understanding and applying mathematics/statistics to analyze and interpret real-world quantitative information in a disciplinary context. Individuals with strong QR skills possess the ability to reason about and solve quantitative problems from a wide array of contexts. They understand and can create sophisticated arguments and conclusions supported by quantitative evidence and can clearly communicate those in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

Below are categories or criteria	4, 3, 2, 1 are levels of achievement or performance descriptors			
	4 **Fully meets**	**3** **Mostly meets with some gaps**	**2** **Major gaps**	**1** **Little to none**
Problem Formulation Translation of the disciplinary/real-world problem into a QR context (e.g., writing a hypothesis, a math model, quantitative instrumentation). Use and interpretation of quantitative data/information to identify or formulate a problem.	Formulation of the problem is comprehensive and placed in an appropriate quantitative context.	Formulation of the problem is adequate and placed in an appropriate quantitative context.	Formulation of the problem is limited; explanation of the context is somewhat incorrect or incomplete.	Formulation of the problem is incorrect or missing; explanation of the context is incorrect or incomplete.
Representation/Visualization Depiction of quantitative information such as visual (e.g., figures, charts, tables, equations) and non-visual (e.g., audio, ADA accessible).	Accurate and appropriate display of quantitative information using academic vocabulary with correct symbols, units, scale, etc.	Mostly accurate and appropriate display of quantitative information. May contain minor errors in academic vocabulary, symbols, units, scale, etc.	Somewhat accurate and/or appropriate display of quantitative information. May contain major errors in academic vocabulary, symbols, units, scale, etc.	Inaccurate, inappropriate, or missing display of quantitative information. May contain major errors in academic vocabulary, symbols, units, scale, etc.
Quantitative Analysis Selection and use of analytical methods (e.g., data analysis, solution technique).	Appropriate and accurate selection and use of analytic methods.	Mostly appropriate and accurate selection and use of analytic methods.	Somewhat appropriate and/or somewhat accurate selection and use of analytic methods.	Inappropriate and inaccurate selection and use of analytic methods.

Interpretation Description of the meaning of the results in the context of the original problem formulation.	Appropriate and comprehensive explanation of the results obtained from the quantitative analysis in the context of the original problem.	Mostly appropriate explanation of the results obtained from the quantitative analysis in the context of the original problem.	Somewhat appropriate explanation of the results obtained from the quantitative analysis. Explanation of the context is somewhat incorrect or incomplete.	Inappropriate, inadequate, or missing explanation of the results obtained from the quantitative analysis. Explanation of the context is incorrect or incomplete.
Implications Extension of potential application to broader contexts (e.g., predictive values, future directions, ramifications, clinical prognosis, professional and/or civic responsibilities).	Clearly identifies and explains substantive potential applications of the results and their broader impacts.	Adequately identifies and explains substantive potential applications of the results and their broader impacts.	Unclear or limited explanation of substantive potential applications of the results and their broader impacts.	Inappropriate or missing explanation of substantive potential applications of the results and their broader impacts.
Limitations Acknowledgement of and/or reflection on limitations in interpretation and implication that stem from underlying assumptions, data analysis procedures, methods used, and/or characteristics of the data itself (e.g., sample size, skewed, obvious bias).	Accurate and thorough articulation of deficiencies with the underlying data, analyses or conclusions.	Mostly accurate and/or mostly thorough articulation of deficiencies with the underlying data, analyses or conclusions.	Somewhat inaccurate and/or limited articulation of deficiencies with the underlying data, analyses or conclusions.	Inaccurate or missing articulation of deficiencies with the underlying data, analyses or conclusions.
Overall Communication Following a logical sequence and presenting an explicit chain of reasoning. Use of disciplinary terminology as appropriate.	Consistently clear and logical presentation throughout, using appropriate academic language.	Mostly clear and logical presentation; generally uses appropriate academic language.	Somewhat unclear or illogical presentation; may fail to use appropriate academic language.	Unclear or illogical presentation; fails to use appropriate academic language.

Overview of Calibration

The goal for calibration is for faculty to evaluate student work consistently in alignment with the scoring rubric only -instead of including other factors that might be included in a grade . This increases the reliability of the assessment data.

Faculty work together to practice "calibrating" the use of the rubric in the same way so that regardless of which rater assesses the work that the ratings come within a close(r) range.   Faculty are oriented to the rubric, receive training in calibration by practicing with "anchor" papers from the sample papers being assessed. Once raters are scoring within one point of each other on a scale, they are considered "calibrated." Faculty then assess student work samples with the goal to achieve as much consistency and reliability as possible among raters.

Practice Calibration

Calibration Practice #1: Assess Visualization
> Practice 1: Read Assignment instructions (questions #1 and question #2)
> Practice 1a : READ Student work example looking for visualization
> Practice 1a: Enter your ASSESSMENT of student work example for visualization by providing rating and reason why
> Practice 1b READ Student work example
> Practice 1b Enter your ASSESSMENT of Student work example for visualization by providing rating and reason why

Calibration Practice #2: Assess Implications and limitations
> Practice 2: Read Assignment Instructions
> Practice 2a: READ student work example looking for implications and limitations
> Practice 2a: Enter your ASSESSMENT student work example looking for implications and limitations
> Practice 2b: READ student work example looking for implications and limitations
> Practice 2b: Enter your ASSESSMENT of student work example looking for implications and limitations

Assess Student Work

Log onto Blackboard Outcomes - the electronic assessment platform

1. First log onto Blackboard. https://bb.csueastbay.edu/

2. Open the email from Meg Taggart titled, Evaluation Session Started → Log in to your email

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Evaluation Session Started ▶ Administrative/Links ✕   ⤬ 🖨 ↗

donotreply.bb@csueastbay.edu   Mon, Apr 6, 10:29 AM   ☆ ↩ ⋮
to me ▾

Meg Taggart has just started an evaluation session and has chosen you as a qualified Evaluator. Please click the link to view the submissions and begin evaluating. If you have any questions, you may contact Meg Taggart at meg.taggart@csueastbay.edu. Thanks for your help! Click here to view your link.
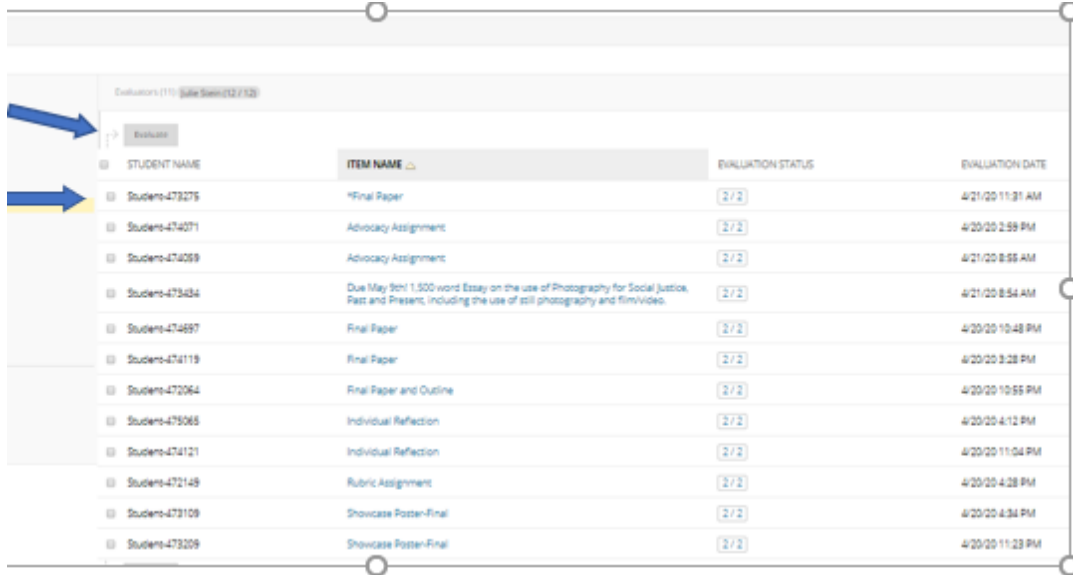
If you have not logged onto Blackboard before you open the evaluation session, you may get an error message.

Error

Cannot create a session after the response has been committed
For reference, the Error ID is 40cac691-0b5f-4999-bacb-d5ac5b7698f9.
Friday, May 8, 2020 10:16:00 AM PDT
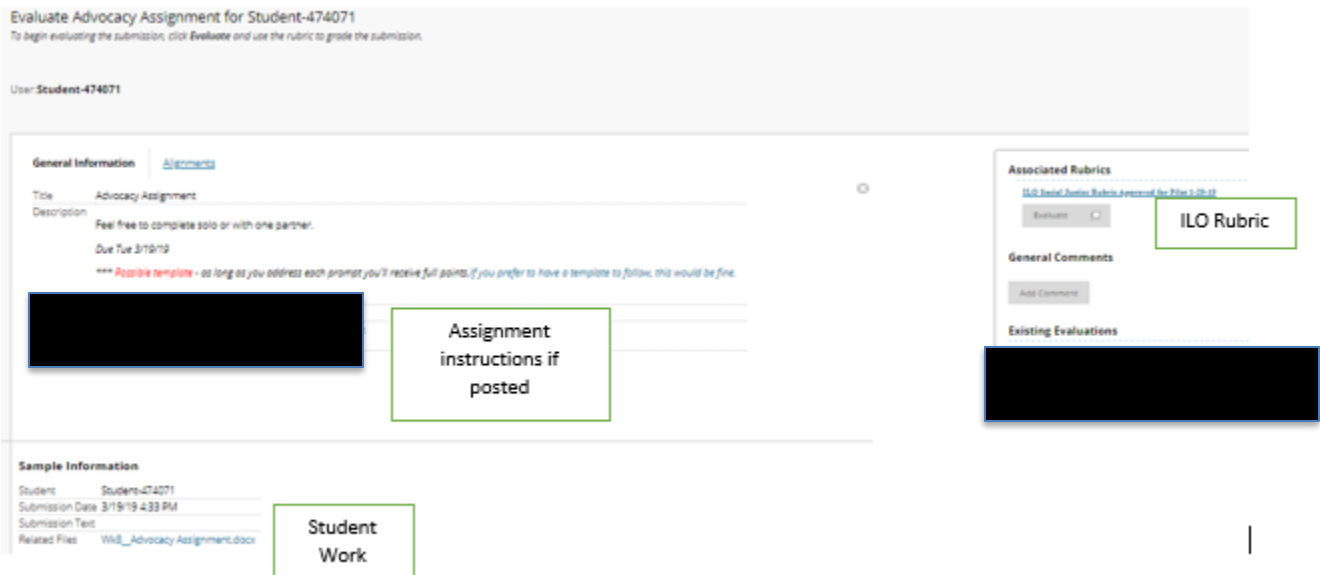
Assess 10 student samples

1. Select a student sample by clicking a box and then selecting "Evaluate."

2. The next screen has the ILO rubric, the student work, and the assignment instructions if posted.

3. As best you can, open both the ILO rubric and student work on the same screen. The example below is from social justice. The arrow shows where you have the option of using the rubric in "Grid View" or "List View." This example is "List View."

The actual ILO QR rubric that you will use in Blackboard looks like the one below.
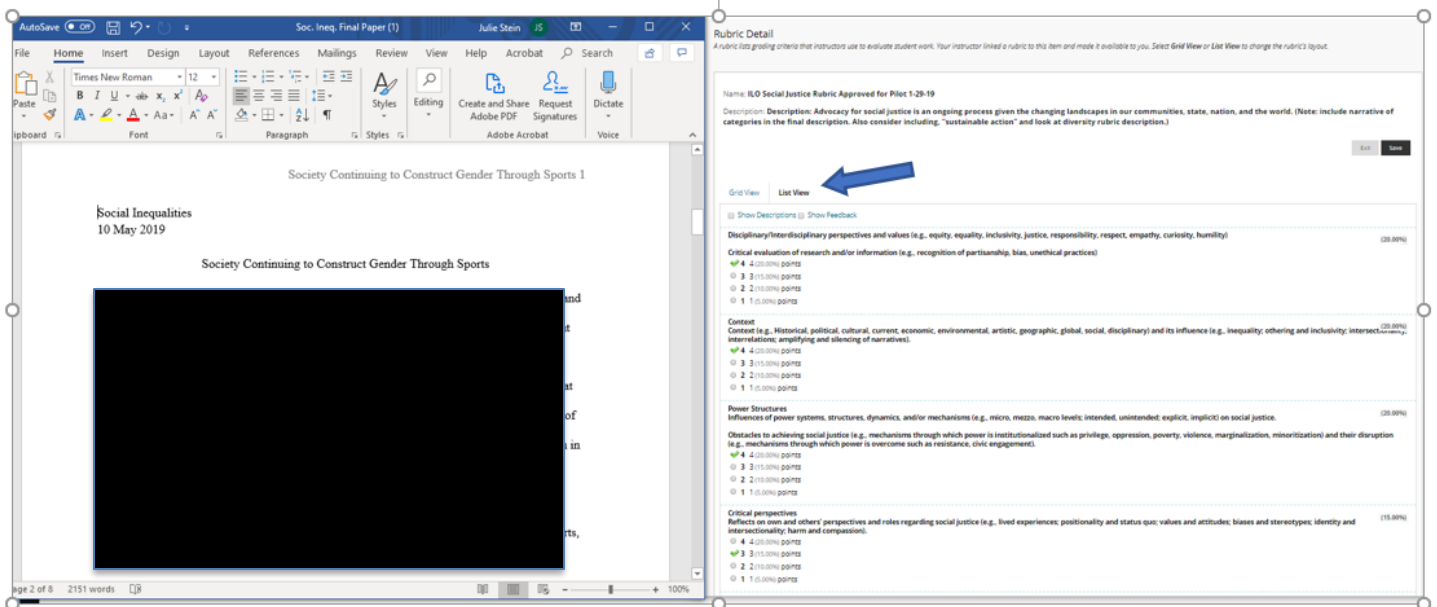
4. The actual ILO QR rubric that you will use in Blackboard looks like the one below.

- You will provide a rating for each category that you used in the the assignment with of "4" 3, "2", or "1".
- If you did **not** use the category for your assignment, rate it "not applicable" by selecting a **zero.**
- Rate the last category, Overall Communication" based on your assessment of their overall communication.
- Bala and Julie S need to check assessments and will send a private chat for corrections if assessing a category you said you weren't assessing, or if you provided a zero score for a category you are assessing. We cannot make the corrections.

Criteria ↑↓	4	3	2	1	New Column5
Problem Formulation Translation of the disciplinary/real-world problem into a QR context (e.g., writing a hypothesis, a math model, quantitative instrumentation). Use and interpretation of quantitative data/information to identify or formulate a problem.	Points 4 — Formulation of the problem is comprehensive and placed in an appropriate	Points 3 — Formulation of the problem is adequate and placed in an appropriate	Points 2 — Formulation of the problem is limited; explanation of the context is	Points 1 — Formulation of the problem is incorrect or missing; explanation of	Points 0 — Select 0 if not using assessing this category in your assignment.
Representation/Visualization Depiction of quantitative information such as visual (e.g., figures, charts, tables, equations) and non-visual (e.g., audio, ADA accessible).	Points 4 — Accurate and appropriate display of quantitative information	Points 3 — Mostly accurate and appropriate display of quantitative	Points 2 — Somewhat accurate and/or appropriate display of quantitative	Points 1 — Inaccurate, inappropriate, or missing display of quantitative	Points 0 — Select 0 if not using assessing this category in your assignment.
Quantitative Analysis Selection and use of analytical methods (e.g., data analysis, solution technique).	Points 4 — Appropriate and accurate selection and use of analytic methods.	Points 3 — Mostly appropriate and accurate selection and use of analytic methods.	Points 2 — Somewhat appropriate and/or somewhat accurate	Points 1 — Inappropriate and inaccurate selection and use of analytic methods.	Points 0 — Select 0 if not using assessing this category in your assignment.
Interpretation Description of the meaning of the results in the context of the original problem formulation.	Points 4 — Appropriate and comprehensive explanation of the results	Points 3 — Mostly appropriate explanation of the results obtained from	Points 2 — Somewhat appropriate explanation of the results obtained from	Points 1 — Inappropriate, inadequate, or missing explanation of the results	Points 0 — Select 0 if not using assessing this category in your assignment.
Implications Extension of potential application to broader contexts (e.g., predictive values, future directions, ramifications, clinical prognosis, professional and/or civic responsibilities).	Points 4 — Clearly identifies and explains substantive potential	Points 3 — Adequately identifies and explains substantive potential	Points 2 — Unclear or limited explanation of substantive potential	Points 1 — Inappropriate or missing explanation of substantive potential	Points 0 — Select 0 if not using assessing this category in your assignment.
Limitations Acknowledgement of and/or reflection on limitations in interpretation and implication that stem from underlying assumptions, data analysis procedures, methods used, and/or characteristics of the data itself (e.g., sample size, skewed, obvious bias).	Points 4 — Accurate and thorough articulation of deficiencies with the	Points 3 — Mostly accurate and/or mostly thorough articulation of deficiencies	Points 2 — Somewhat inaccurate and/or limited articulation of deficiencies	Points 1 — Inaccurate or missing articulation of deficiencies with the	Points 0 — Select 0 if not using assessing this category in your assignment.
Overall Communication Following a logical sequence and presenting an explicit chain of reasoning. Use of disciplinary terminology as appropriate.	Points 4 — Consistently clear and logical presentation throughout. Uses	Points 3 — Mostly clear and logical presentation; generally uses appropriate	Points 2 — Somewhat unclear or illogical presentation; may fail to use	Points 1 — Unclear or illogical presentation; fails to use appropriate academic language.	Points 0 — SELECT 1-4 for how you assess overall communication.

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5. When you have provided a numeric score for all of the categories, select **"Save"** to enter the assessment.

6. After you have saved the assessment, select **"Return to Listing"** to select the next student sample.

7. Additional Points
- If you are having difficulty opening a student assignment, chat with Julie Stein who will set-up a break-out room with Meg Taggart.
- You are assessing **10 student samples.** When possible, additional assessments were distributed as a back-up in the event there were problems opening a student assignment.
- Bala or I are double-checking your assessments as you proceed and will chat privately with you if we have a question

Complete Survey

Please complete this ILO QR Assessment Faculty Survey.

Next Steps

- Zoom meeting can remain active for those who are completing assessments after 4:00 pm.
- Faculty payments are being processed.
- Bala and Julie S need to check assessments and will contact faculty for corrections if assessing a category you said you were not assessing, or if you provide a zero score for a category you are assessing. We cannot make the corrections.