Faculty Self-Reflection Guide

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Instructions for Annual Review

What is teaching self-reflection?

Teaching self-reflection is a process through which faculty document and evaluate their teaching efforts and steps they have taken to improve. Self-reflection complements student and peer feedback by enabling faculty to consider and explain their teaching decisions.

The self-reflection process involves:

- **identifying a teaching challenge,**
- **collecting data** and/or **systematic observation** of these challenges,
- **analyzing** the data and/or observations,
- **reflecting** on the findings of this analysis, and
- **making decisions** about future lessons or courses.

The self-reflection process aligns with university expectations that faculty "*provide data that have been systematically collected and analyzed to support claims about teaching quality and teaching improvement*" as described in the University of Georgia Guidelines for Appointment, Promotion and Tenure. Annual self-reflection also provides a way in which instructors can demonstrate "*ongoing efforts to make teaching decisions based on data and to improve teaching and instruction* (pg. 14)."

What are the expectations for annual review?

The faculty are being asked to document teaching self-reflection as part of the annual review process. This will help the department encourage and recognize faculty efforts to improve their teaching. Also, self-reflections generated over multiple semesters can help faculty illustrate their teaching efforts and trajectory for promotion and/or tenure decisions.

All Genetics faculty must prepare a 1-page narrative documenting their teaching self-reflection each year in response to specific prompts. Faculty are encouraged to make ambitious goals and

expect that things will not always work. Self-reflections will be evaluated based on demonstrated effort to make improvements (see rubric in Teaching Self-Reflection Guide). Everyone can

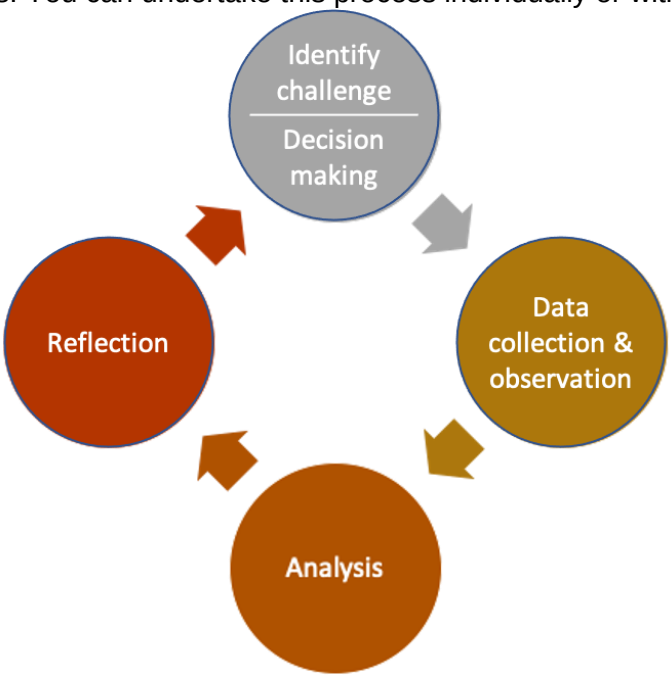
How should teaching self reflection be performed?

Self reflection can be used by faculty any time they teach to document the strategies they use, whether these approaches worked well, and to plan changes for future semesters. However, teaching self reflection does not need to examine all courses an instructor teaches or all aspects of their teaching. Ideally, an instructor will decide what teaching challenge they wish to examine in a specific course, what they wish to learn, and what data they need to collect. The instructor would then plan out and perform the steps needed to collect these data (or observations) from the class.

Faculty do not need to work alone to engage in self-reflection. Just as scientists work with collaborators when conducting research, faculty can work with peers and outside experts (e.g. in the CTL and elsewhere) to collect and analyze data and make observations. Peers can also contribute different perspectives and generate creative and diverse solutions. Collaborations can take place through informal conversations or, more formally, in workshops and through professional development.

Detailed Guidance About the Self-Reflection Process

The self-reflection process is visualized below. Self-reflection follows a cycle in which the decisions you make one semester influence the collection of data and observations in subsequent semesters. You can undertake this process individually or with colleagues.



Decision making: Identifying challenges and responses.

A key step of the self-reflection process is choosing which teaching challenge you wish to focus on.

If you are new to teaching or the reflection process, your self-reflections should explore potential challenges and the way you teach rather than the impact of your teaching. For example, you could reflect on the way you present concepts, provide practice for students, or assess learning. If you are not sure what your teaching challenges are, feedback from peer observations, mid-semester feedback, and student course evaluations can provide suggestions.

If you have previously identified teaching challenges and have already tried to address them, it would be appropriate to select one such challenge and begin with your latest attempt at a response. More experienced instructors should attempt to reflect on the impact of their teaching, rather than just the way they teach. For example, you could reflect on your students' interest in science, sense of belonging, or learning gains.

Questions to help you identify a worthy teaching challenge:

- What would I like to do differently in my course and why?
- What new teaching approaches do I want to try?
- What topics or skills seem particularly challenging to students?
- What rationale did I use (implicitly or explicitly) when I chose my particular teaching practices and do those rationales still serve me and my students?
- Why are students' struggling to learn a particular concept or master a particular skill?
- How can I help students improve their learning?

- What are students' experiences in my course and how do these experiences impact them beyond my course?

A comprehensive list of teaching challenges and potential strategies can be found here: https://www.cmu.edu/teaching/solveproblem/step1-problem/index.html

Examples of worthy teaching challenges:

- Students complain that my exams are too difficult.
- Students do not attend class or breakout sessions.
- Students struggle to learn a particular concept.
- I don't know how to help students learn to read primary literature.
- I am uncertain of the impact of Peer Learning Assistants in my course or how best to involve them in my course.
- I am uncertain whether pre-class quizzes actually help students learn during class.
- I am uncertain whether my teaching increases student interest in science.
- I don't know if my course creates any meaningful long-term learning in my students.
- I don't know if students from marginalized groups feel included and able to learn in my course.

Collecting Data & Systematic Observations.

Once you identify a challenge, you then need to determine what data will help you understand the challenge in order to respond and improve your teaching. Data collection will most likely take place in your courses, but can also happen through conversations with colleagues or during professional development offered through the Office of Institutional Research or the Center for Teaching and Learning.

Examples of Data to Examine Teaching Challenges

- Informal sources of data
  - Interactions with students in class and office hours, documented in notes
  - Written feedback from students. For example, ask students to write for one minute about a concept they have learned or ideas they feel are most unclear.
  - Notes about a class lesson that went particularly well or not so well
  - Notes after grading an exam, project, or other assignment
  - Notes from working with colleagues on teaching materials or assessments
  - Notes from teaching workshops, CTL events, faculty learning communities
- Formal sources of data
  - Assessments that students have completed (e.g., quizzes, papers, exams)
  - Research-based learning assessments (e.g. concept inventories, pre/post tests, etc.). Research-based learning assessments have been investigated for their ability to produce valid and consistent results in particular populations of students.
  - Instructor-generated surveys to gather detailed feedback from students
  - Audio- or video recordings of student behavior in class
  - Student evaluations (i.e., midterm or end-of-course)
- Longitudinal types of data
  - Student performance data from Office of Institutional Research, including
    - gaps in performance among different groups of students
    - student performance across different sections of the same course
    - student performance in subsequent courses

- Systematic observation
    - Feedback and insights from Peer Learning Assistants
    - Feedback from trained peers
    - Video-recorded teaching practices, analyzed using protocols that direct attention to specific aspects of instructor and student work.

Determining what data or observations you need to collect
If you are new to engaging in self-reflection for continuous teaching improvement, you may feel best prepared to carry out informal, short-term data collection or observation. You may also need to ask open-ended questions of students. As you gain experience with self-reflection, you may decide to gather more formal, longitudinal data or observations.

Examples of different types of data or systematic observation faculty could use to reflect on example teaching challenges.			
Teaching Challenge	**Informal Data/Observation**	**Formal Data/Observation**	**Longitudinal Data/Observation**
Students complain that my exams are too difficult	Note which exam questions are most difficult and compare these to the opportunities that students had to practice in class	Collaborate with a colleague to compare the concepts and cognitive level of exam questions with in-class practice questions for one unit in your course.	Analyze exam questions concept and cognitive level and student performance by question over a series of semesters.
Students' understanding of a particular concept	Take notes after each class session about the most common questions and confusions for the concept.	Thoughtfully design a set of exam questions on the concept and document student performance.	Use the same set of exams questions every semester, covering the concept of interest. Look for trends and how they relate to pedagogy.
Variation in classroom performance by students of different demographics	At each office-hour session, invite students to share how they're doing in the class and life. Take notes on any issues that students identify and how different types of students experience the course.	Generate a survey about students' experiences in the course. Analyze results across different demographics.	Request and examine student performance data from the Office of Institutional Research, looking for any grade penalties experienced by students across different demographics.
Facilitating whole-class discussion	Ask Peer Learning Assistants to provide feedback for ways you could improve whole-class discussion.	Invite CTL to conduct a mid semester formative evaluation focused in particular on your use of whole-class discussion.	Experiment with new forms of facilitation each semester, and compare your mid semester formative evaluations.

Questions to help guide data collection:
- What data / observation do I need to better understand your teaching challenge?
- What data / observation would convince me that a change is having the intended impact on students?

- How will I know if changes I have made helped students?
- Is my teaching challenge exploratory and therefore do I need more open-ended data?
- Do research-based assessments exist for measuring the impact I aim to have?

Analysis of Data to Address Teaching Challenges.

This document assumes that you have collected data and observations that you can be analyzed. The type of analysis will depend on the type of data. Notes, informal feedback, and systematic qualitative observations need to be organized into categories and themes. Surveys and assessment data need quantitative analysis. If you need help with analyses, seek help from the DeLTA project and the CTL.

Knowledge: Making Sense of the Teaching Challenge in Light of data.

Once you gather and analyze your data, you can reflect on your teaching challenge in light of this new information. This can help you explain your findings and identify steps you might wish to make in order to improve your teaching or to collect more data.

Example questions to facilitate reflection:

Questions for making sense of the findings:

- What do the data suggest about the source of this teaching challenge?
- Do my findings align with my expectations? What does this tell me about my expectations?
- What additional data could help me learn more about this challenge?
- What are others' experiences with this type of teaching challenge?
- What new questions do the data raise?

Questions to determine the implications of the findings:

- Based on the data, who should I talk to or what resources should I consult?
- What should I do differently to support student outcomes?
- What teaching plans should I adopt?
- How might Peer Learning Assistants, TAs, co-instructors, and colleagues help me?
- How might the DeLTA project or the CTL help me?
- What strategies exist in the literature to help me improve?

Finally, having collected, analyzed, and reflected on data, you can decide what to do next. This ongoing cycle will lead you to become an increasingly effective teacher.

Criteria That Will Be Used to Evaluate Self-Reflections

The main goal of teaching self-reflection is to help faculty regularly improve their teaching. Therefore, criteria for evaluating self-reflection narratives emphasize the effort that faculty invest or plan to invest in teaching improvement and the use of a systematic, data-based approach to tackling worthy teaching challenges. This table describes four important criteria for the self-reflection process at three different levels

Criteria	**Minimal effort toward teaching improvement**	**Good effort toward teaching improvement**	**Ambitious effort toward teaching improvement**
Selection of a worthy teaching challenge	Instructor selects a superficial challenge (i.e., lack of clear importance to course learning goals or other desired student outcomes).	Instructor selects a reasonable challenge with clear implications for course learning goals and/or other desired student outcomes	Instructor selects a substantial challenge with clear implications for course learning goals and/or other desired student outcomes
Use of data or systematic observation	Instructor relies on little or no data, nor systematic observation to inform instruction	Instructor collects reasonable data and/or systematic observations of students that are clearly relevant to the specified challenge	Instructor collects extensive data and/or systematic observations of students that are clearly relevant to the specified challenge
Synthesis of data	Instructor does not systematically synthesize data in a manner that provides actionable findings	Instructor conducts reasonable syntheses of the data collected to produce findings that can be acted upon	Instructor conducts systematic synthesis of the data collected to produce findings that can be acted upon
Changes based on data, systematic observation, or peer-reviewed literature	Instructor proposes teaching adjustments (or no adjustments) without clear justification from data collected and synthesized, nor evidence from the peer-reviewed literature.	Instructor proposes reasonable teaching adjustments that are aligned with the results of data synthesis and/or peer-reviewed literature	Instructor proposes substantial teaching adjustments that are aligned with the results of data synthesis, and/or peer-reviewed literature

Examples of Teaching Self-Reflections

The following examples show the ways some UGA faculty have used self-reflection to improve their teaching:

Example 1: Focus on improving alignment between teaching and assessment. This is an example of a written reflection from a faculty member who is in their first year of teaching. The faculty member identified a teaching challenge and engaged in the self-reflection process to better understand the problem. Using informal data and guidance from the CTL, they discovered a potential solution and tried it out.

Written self-reflection narrative for annual review:

Teaching challenge considered this year: During my first year of teaching, students commented on teaching evaluations that my exams were too difficult. They complained that class made the material seem easy, yet when they took my exams they felt completely unprepared.

Data collection: Over the summer, I conducted an analysis of the relationship between my exam questions and the practice questions provided in class. Practice questions included clicker questions and questions for small- and large-group discussion.

Analysis of data: My analysis revealed that students had sufficient practice on easier topics and multiple-choice items. However, I had not provided sufficient practice for students on challenging topics and short-answer questions. More specifically, only 20% of the in-class questions I posed covered challenging topics and required short answers and written explanation.

Data based teaching decisions about what and how to change: I discussed my findings with an Assistant Director in the Center for Teaching and Learning. We came up with the idea to end each class with a short-answer question covering a challenging topic. gave students ten minutes to answer the question. After class, I reviewed a subset of responses and provided feedback to students the next class period. I implemented this strategy last fall. In my end-of-course evaluations, many students noted how much they appreciated the in-class practice questions, and I had noticeably fewer complaints about the difficulty of my exams.

Example 2: Focus on improving student buy-in to case-based learning. This is an example of a written reflection from a faculty member who is in their tenth year of teaching but their second year of trying a flipped classroom approach. They identified a teaching challenge and engaged in the self-reflection process to better understand the problem. Using informal data and guidance from the CTL, they discovered a potential solution and tried it out.

Written self-reflection narrative for annual review:

Teaching challenge considered this year: Two years ago I adopted a flipped classroom approach. My students watch video lectures in advance of class, and during class they complete case studies that situate the content in real-life contexts and require problem solving. I have found new enthusiasm for teaching using this approach, but I was

discouraged because many students constantly asked me for keys to the case studies and resisted fully completing the problems on their own.

Data collection: Last semester I invited the CTL to conduct a mid-semester formative feedback session with my students, and I asked them to specifically gather feedback about how to improve students' engagement with case study learning.

Analysis of data: The CTL reported that most students like the cases. It took them a while to get used to watching videos in advance and completing the cases each week, but they now realize the cases align well with exams. However, the number one concern students voiced was that they needed me to lecture more. The CTL helped me understand students' suggestion that providing a short lecture at the beginning of class could make students feel more oriented to the material and better able to connect the new class material with prior classes.

Data based teaching decisions about what and how to change: I learned from this experience that students appreciated the case studies. I realized how important it is to keep creating exam questions based on the case. I reflected on my decision to use minimal lecture and felt this was important to continue because I know students need time to work through the material for themselves. However, I had not previously considered how lost some students feel if I ask them to jump right into the case without orientation to the concepts that are to be learned, which they call lecture. I responded to students' concerns during the next class period. I explained that I would not be lecturing much more frequently because of the importance of giving them time during class to make sense of the material with my guidance. However, I committed to change the way I introduce cases by beginning every class period with a 10-15 minute introduction that shows students what they are supposed to learn and how it connects with prior material.

Example 3. Focus on response to achievement gaps across demographics.

Written self-reflection narrative for annual review:

Teaching challenge considered this year: My colleagues and I in MATH 2250 meet regularly to discuss student learning outcomes. Due to some of our anecdotal observations in class, we became concerned that systematic differences in final grades among students from different types of high schools might be occurring.

Data collected: In Fall 2020, we collaborated to collect data from the Office of Institutional Research to see if our concerns were founded. Institutional Research provided us with students' final grades across all sections of MATH 2250 for the past five years.

Analysis of data: We analyzed these data using an analytic protocol provided by the DeLTA and HHMI Inclusive Excellence projects. We found that even after controlling for STEM GPA, students from rural high schools performed one-half of a letter grade below their peers from more urban high schools.

Data based teaching decisions about what and how to change: We worked with the Center for Teaching and Learning to address this problem. We pinpointed several structural issues that may be interfering with the success of rural students. We learned that rural students often experience barriers in college courses due to the cultural differences between

them and their more urban peers. They also experience challenges due to the different types of demands of their college courses compared to their high school courses. This means they struggle in study groups and with study strategies. We addressed this problem across all MATH 2250 sections with two changes. First, we formalized groups and required each group to adopt a community code of standards. Second, we facilitated study groups for outside of class by creating a course-wide sign-up sheet. In Fall 2022, we collected follow up data from Institutional Research. Comparing our data from the past two years to the previous five, we find that the grade disparities have nearly disappeared. All student groups are performing as expected based on the predictor of incoming GPA. Moving forward we will continue to collect and examine these types of data for MATH 2250. We will use mid-semester formative assessments from the Center for Teaching and Learning that focus on students' interactions in small groups, ongoing data collection from Institutional Research, and recruiting students from rural high schools to work with our instructional staff in MATH 2250 through UGA's PLADawgs program.

Example 4: Focus on improving students' conceptual understanding and problem solving. This example is from a faculty member who engaged in a long-term self-reflection process. This reflection is written after three semesters of work on a specific teaching challenge. They had taught this course for three years. This particular reflection was written for annual review, but the faculty member will also highlight this example of self-reflection in their dossier for promotion.

Written self-reflection narrative for annual review:

Teaching challenge considered this year: This year I continued my ongoing efforts to improve student learning about the central dogma in BIOL 1108. After a few semesters of disappointing exam performances and the sense that students were not getting as far as I wanted them to, I undertook the challenge of improving my teaching of central dogma. I read a few papers in *CBE-Life Sciences Education* that convinced me that many students struggle to learn central dogma because of intuitive ideas they bring into the course and confusion about the visuals used to teach the topic. I started by trying to learn more where my students were struggling. I wrote some challenging, short-answer questions. Students answered these questions in class and on exams, and I analyzed their writing for common difficulties. This year I developed and tried three new lessons based on what I learned from my students. In spring, I used a new set of in-class problems that broke down the topic and specifically brought up common difficulties. In the fall, I revised that problem set to make it even more challenging and to address some problems I noticed with how students approached it in the spring. My goal this year was to learn whether students' knowledge was improving from the lessons.

Data collected: I collected data about student learning in both fall and spring semester. I used a research-based assessment and a few of my own open-ended questions that get at what I think is most important. I used the published Genetics Concept Inventory, which has some questions about central dogma. Students completed it for a bit of extra credit at the start and end of the semester. I also used questions that I have used in class before, so that I could compare student performance to past semesters when I did not use the same approaches. I mixed the questions up so a question that would have been on the exam before was used in class and vice versa.

Analysis of data: I was able to match students' pre and post-test data for the Genetics Concept Inventory and calculate each students' percent gain in score. In other words, if they

scored a 50% at the start of the semester and a 74% at the end, their percent gain was 24%. Then I calculated the average percent gain across my section. I could compare this to some of the publications that use the same assessment, but mostly I wanted to look more closely at the central dogma questions. I compared data from spring and fall. I also analyzed their answers to the open-ended questions, looking for the same common difficulties I had identified in a prior semester. I also noticed that some students were making clear connections between important ideas, so I re-analyzed their answers to note these high-level connections and compared that to their exam results in prior semesters.

Data based teaching decisions about what and how to change: The data from this year shows students are learning about central dogma from the new problem set. There were eight questions related to central dogma on the research-based GCA. Students' average scores on these questions at the start of the semester was 48% and 51% in spring and fall, respectively. At the end of the semester, they were scoring 79% and 77%, respectively. This represents an improvement of 25-30%. I do not have data to compare to prior semesters I taught, but this compares favorably to pre and post-testing data from published studies. More importantly to my efforts, I saw a real shift in how commonly students retained problematic ideas on the open-ended exam questions and how commonly they were able to make the higher-level connections I sought. In a semester before the problem set, about 30% of students still had common problems on the exam and only about 15% showed data of making higher level connections. In spring, the first semester that I used the problem set, it dropped to 18% with common problems and 45% making connections. My changes for the fall improved that to just 15% with common problems and nearly 60% making high-level connections. I am very impressed with what my students were able to learn. My next challenge will be to re-design subsequent lessons to again target common difficulties and push their thinking further.