

Fair Grading and Effective Feedback

Carolyn Ladd, Chemistry, Postdoc

Olivia Harper Wilkins, Chemistry, G4

Outcomes: By the end of reading this document, you will be able to...

- **communicate clear expectations to students**
- grade consistently and fairly
- provide efficient and effective feedback for students

Communicating Expectations

A key component of fair grading and providing effective feedback is ensuring that your students understand *what* they are being graded on and *why*. If students understand how an assignment will be graded *before* the assignment is due, they will be able to produce better work and ultimately receive more relevant feedback. For instance, if a student does not know how to structure a lab report, comments from the (TA) on the draft the student turns in will likely focus heavily on lab report structure rather than content or scientific understanding.

Perhaps the most effective way to communicate expectations is to **describe assignments with transparency**. Transparent teaching has been shown to significantly improve student learning and grades.¹ To create a transparent assignment, you should express the following things to students:

- **Purpose of the assignment** – What skills should students practice? What knowledge will they gain? For instance, explain to students how the assignment will benefit them and what skills they will develop by doing the assignment well.
- **Task(s) at hand** – What are the students actually doing? What steps should be followed? For instance, if there is a specific format or workflow they should be employing, inform them what it is or how to do it, which is particularly important for students who do not have prior experience with the type of assignment they are doing. A rubric can be a good tool for clarifying what the student should focus on.
- **Criteria for success** – What does excellence look like? Provide students with examples of “good” work (e.g. answer keys for similar questions, a sample lab report or journal article, a sample presentation) that demonstrates the format you want your students to follow, or list these expectations for students so they can focus on higher order concerns like content and scientific understanding.

By communicating your expectations clearly, you will be on your way toward fair grading and providing effective feedback.

¹ Winkelmess, M.- A. Transparency in Teaching: Faculty Share Data and Improve Student Learning. <https://www.aacu.org/publications-research/periodicals/transparency-teaching-faculty-share-data-and-improve-students>

Fair Grading

Our goal when grading is to provide students with a fair assessment of their work. Providing clear expectations is a first step, but there are many ways to grade fairly once assignments have been submitted.

Rubrics

One strategy for fair grading is to use a **rubric** to score students' work and standardize your evaluation. Rubrics require time up front to develop, but they can speed up the actual grading process in addition to allowing you to grade more fairly and consistently. Additionally, publishing a rubric before an assignment is due can assist students in meeting your requirements, as well as help them understand the grade they received and how to improve. *Always check with the faculty instructor before publishing a detailed rubric.*

When designing a rubric, you should first consider which **criteria** you would like to grade. These criteria should align with the course's overall learning goals and what skills students should practice when working through the assignment.

For each criterion, develop a **scale** of student performance. This could be a two-level scale (e.g. *Student included chemical equation: yes/no*) or multi-level scale.

Example of multi-level scale:

Student eye contact during oral presentation:

No eye contact, read directly from slides

Minimal eye contact, mostly read slides

Consistent eye contact, sometimes read from slides

Eye contact throughout, seldomly read from slides

In general, pick the smallest number of levels that distinguishes between different qualities of student work.

Assign **points** to each level, deciding how much weight each criterion will have. The most important criteria should be allotted the most points, whereas technical or lower-order things (often criteria graded on a two-level scale) should be worth relatively few points.

If when grading the first few assignments you find your rubric doesn't differentiate between different qualities of work or that there are additional criteria you would like to include, you can revise your rubric. If sharing your rubric with other graders, make sure they understand and agree with your criteria, scaling, and point distribution.

Grading with multiple TAs

If you are working with other TAs to grade student work, be sure to communicate with each other to ensure consistent grading. If the assignment can easily be split up into questions or sections, you might have each TA grade one section for all students. If this isn't possible, have all TAs use the same detailed rubric and grade together in the same place so issues can be discussed with the group as they arise. If the other two options are not feasible, consider splitting the class into marking sections and have each TA grade for each section, rotating throughout the term so each student is graded by all TAs equally.

Other best grading practices

In addition to being clear about your expectations for students and using rubrics, there are several other strategies for grading fairly and efficiently:

- **Provide consistent answers to all questions about grading**, and ensure equal access to your answers. It may help to set limits such as “no clarification questions 24 hours before an assignment is due” or “no questions after the last office hours/recitation/class” so that everyone has the same information.
- **Spend an equal amount of time grading each student.** It's easy to spend a lot more time on the first few assignments. Budget your time and use a stopwatch if necessary.
- If possible, **grade problems sets or lab reports one problem or section at a time** instead of grading each student's entire assignment before moving onto the next student. This will help to ensure you more accurately and fairly assign points for a given problem.
- **Take a break!** When you are tired you are more likely to make mistakes.

Handling Complaints about Grades

It is important that TAs address complaints about grades in a fair and transparent manner. Discuss ahead of time with the professor and other TAs any mechanism for students to earn back points on assignments and exams. Having such an option encourages the students to iterate on their work and confront their mistakes. This is essential for learning the course material. Having a clear and detailed rubric is helpful to ensure you grade fairly but also can be a useful tool for explaining why a student earned a particular grade.

It is important to be transparent, ensuring that any opportunities to earn back points are clearly communicated and that you and the student understand why a particular grade was given. This extends to course grades as well; having a **grading policy** (i.e. how the final grades for the class will be calculated) ensures that both final grades are assigned consistently and that students can get a sense of how they are doing gradewise in the course throughout the term.

Effective Feedback

When grading an assignment, it is important to not only evaluate a student's work with a grade or score but to also give feedback to students so that they can improve bad habits and maintain good habits. Students can only learn from feedback if they understand the feedback and why it was given, so it is imperative that feedback is **understandable and accessible**. Feedback that is insufficient (e.g. only a final grade or raw score, solely cryptic marks such as ~~strike through~~ or underline or generic comments like "awkward") or too much (e.g. paper covered in corrections and markings, excessively long comments) might make it difficult for students to identify what they did wrong or how they can improve. Similarly, if a student makes the same mistake repeatedly, either on a single assignment or throughout the term, the student may not understand what they are doing wrong and are therefore unable to correct it. Additional comments or explanations, or encouraging the student to attend office hours, may help. If you notice **common errors** among students' work, you might send an email or taking time at the beginning of class to explain the error and how it can be addressed in future work.

Feedback should also be **constructive**, with the intent to improve a student's work and support them. A student's self-efficacy (their belief in their ability to successfully perform a given task) has a strong correlation with motivation, good study habits, and general success. As such, a TA's written and verbal feedback can positively or negatively affect self-efficacy.

Include positive feedback in addition to constructive criticism. In addition to correcting mistakes, it is also important to let students know when they have done something well. Students who receive positive feedback in addition to criticism tend to have better self-esteem and better attitudes towards their coursework.

Nice answer!

Great explanation!

You seem to really understand the material in Part A! The material in Part B seemed to be more challenging – Please see my comments and come to my office hour if you want to talk about them.

Feedback should also focus on the action and not seem too personal or make students feel incapable of doing good work. For instance, comments like "You're not very good at writing," or "You should have learned this in high school," suggest there is some innate defect with the student's ability or knowledge base, as opposed to transient issues that can be fixed with practice and effort. Instead, directed feedback such as "Past tense should be used in a lab report," or "This topic is covered in most general biology courses, I recommend this resource," can be more effective.

Finally, it is important that feedback can be usefully incorporated. Feedback should be given in a timely manner so students can contextualize the feedback and act upon it. Waiting too long after an exam to provide feedback might mean students forget what they did on the exam, whereas waiting too close until the next deadline doesn't give students enough time to incorporate previous feedback into the next assignment.

Resources and Policies

There are many resources and policies, both on campus and beyond, that support instructors and students.

The **Family Education Rights and Privacy Act (FERPA)** protects the privacy of students and prescribes the release of and access to their education records. To comply with FERPA, you should:

- hand work back directly to students during recitations or after lecture sections, or
- seal work (e.g. staple a blank cover sheet to the front, fold the work in half so only the name is visible at the top of the page) so that grades/comments are not visible if work cannot be handed back individually, or
- use private online communication (through Moodle or Caltech email) to return assignments, comments or grades.

More information about FERPA is available through the Office of the Registrar.²

The **Caltech Honor Code** states that “No member of the Caltech community shall take unfair advantage of any other member of the Caltech community.” When grading, possible violations of the Honor Code may arise, such as:

- students having identical or nearly identical lengthy responses on homework or exams, or
- students making the same atypical mistake or wording on a problem set, report, or exam, or
- student answers being identical to the answer key from a past year.

If you suspect a violation of the honor code, grade and return the work-in-question as if everything were normal, *but remember to photocopy or scan the work first*. Report to the Board of Control (BOC)³ for undergraduates or Graduate Honor Council (GHC)⁴ for graduate students. Do NOT inform the student that they are being investigated for a breach of the Honor Code.

Honor code issues can be prevented by being clear about the collaboration policies in the course and about what resources (other students, faculty, or other people; the internet; past year problem set and answer keys; the course textbook; other texts; computer programs or calculators, etc.) can be used. It is helpful to clarify these policies at the beginning of every assignment, especially if they differ between different assignments, exams, and questions.

For **teaching questions and advice**, consult with the Center for Teaching, Learning, and Outreach.⁵ You can also discuss general concerns with the Graduate Dean’s office or course-specific concerns with the faculty instructor or other TAs (including former TAs!) for the course.

² <http://www.registrar.caltech.edu/ferpa>

³ Email boc@caltech.edu

⁴ Email ghc@caltech.edu

⁵ <http://ctllo.caltech.edu>

Adapted from the Fair Grading and Effective Feedback session materials prepared for the 2018 annual Caltech Teaching Conference by Kelsey Boyle and Kevin Yang. See http://ctlo.caltech.edu/documents/3909/online_boyle_grading.pdf for more advice and examples of rubrics, grading, and comments on student work.