

# Case Study 1: Peer Grading

Peer grading is the practice of having students in a class grade one another. It is not only an efficient way to grade assignments, but the act of grading actually helps students learn the material better [1]. In the simplest version of peer grading, students simply exchange papers. But these days, there are online systems that handle the anonymization and distribution of assignments and grades.

A professor would like to implement an online peer grading system in her class. She doesn't know any statistics or computer science, so she turns to you for help in designing the system. Her primary concern is that some graders are less reliable than others. She says,

“If two students do equally well on an assignment and one student gets a more lenient grader than the other, then the student who gets the more lenient grader will get a higher grade. That seems unfair!”

1. How would you design an online peer grading system? (Focus on what you need to collect good data, not on the software engineering.)
2. Once the peer grades have been collected, how would you fit a statistical model to the data so that you can accurately assign grades, taking into account that some graders may be less reliable than others?

## References

- [1] D. L. Sun, N. Harris, G. Walther and M. Baiocchi. Peer Assessment Enhances Student Learning: The Results of a Matched Randomized Crossover Experiment in a College Statistics Class. PLOS ONE, December 2015.