

Managing Academic Integrity In Online Labs

Problems with Academic Dishonesty

- Just as in a face-to-face class, it is important to maintain academic integrity in an online science class.
- In a traditional lab class, students work in groups; they might not all do the same amount of work.
- Laboratory data can be copied or invented by students not doing the work.
- In a traditional class, the instructor can see students doing the work and see which students have problems.

Students Can Be Opportunistic

- Just as in a traditional classroom setting, some students will find ways to **manipulate the system** in an online setting.
- Students talk to each other, comparing and sharing notes.
- Students copy work from previous terms. When the exercises are the same, students can change the name on a project (or the format) and resubmit it as their own.
- Students use the Internet to check results. Are the results what they expect to see? If not, can they make the results fit the information from the Internet?

Academic Dishonesty Online

- In any online class, an instructor faces challenges not encountered in a face-to-face class.
- Is the student the one taking the tests?
 - Some students might have a roommate or another student do the work for them.
 - They might communicate with different students in the class and collect data from them.

Check What's Available Online

- Are your students using online sources to adjust their results?
- Some students copy an entire project directly from the Internet and expect credit.
- Check the Internet and compare students' work and pictures with what you find.
- The Internet changes all the time, and new information is added rapidly. Be vigilant and check often for updates.
- Students might post their results online for others to use. It is always smart to check social sites.

Avoid Some Pitfalls of Online Education

- If you use the same assessment continuously, students will find out, and one of them could share the assessment online.
- Pay attention and check your students' grades. Are they suspiciously high? Then the assessment might have been shared.
- **What can you do?**
 - **Make different versions of assessments.** Mix up the order of the questions. This simple trick will reduce the chance of students blindly copying other students' work.
 - **Change assessments between terms.** Develop a bank of assessment questions, which you can use to make new versions each term.

Change the Experiments

- **Changing the order of experiments** for students in a class, and between terms, will help keep student data real.
- **Add other variables to the experiments.**
 - Have part of the class test one set of variables and the other part of the class test the second set. Combine the results at the conclusion of the class.
- These ideas will increase the data set as well as the educational value of the experiment—and keep your students interested in the work they're doing.



Test Taking

- If needed, use a proctor for exams.
- There are several ways to proctor an exam:
 - **Have students come to a central location for their tests.** This will only work if students live relatively close to each other and have reliable transportation.
 - **Have students take exams in front of a web camera.** This requires a good internet connection from your students and a good server from your school.
 - **Consider an online proctoring service.** Services use computer algorithms to look for eye movements and body postures that indicate possible academic dishonesty.

Studies Have Shown...

- **Students need detailed feedback.** The more information you give them, the better they understand what's expected of them
- **Discussions help students engage with the process of an experiment.** Let them know their work is important and that the class is trying to solve an experimental puzzle together.
- **Responding quickly to student issues increases student honesty.**

Instructor Interactions are Key

- Regular instructor-to-student interaction will increase academic integrity.
- Students need to feel they're getting attention. Lack of attention may be seen as if what they are doing is not important.
- Be enthusiastic and encouraging. If you're energetic about the class, they'll be energetic.

Respond in a Timely Manner

- **Responding quickly to student issues increases student honesty.** When students don't get a timely answer from an instructor, they might go and look for an answer online. They are more likely to copy information.
- **Set a clear timeframe in which student issues are addressed.** That way, students won't feel lost.
- **Post feedback and grades within 24–48 hours.** Students will be anxious about their grades, but if they know when to expect them, their anxiety will decrease. It improves student morale.

Keys to a Successful Online Science Class

- Students **show pictures of themselves** unpacking materials from their laboratory kits. This is a good introduction to the class and can address any issues or uncertainty about the content of their kits.
- Students **write detailed lab reports**. Have them describe exactly what they've done. This will help in troubleshooting any unexpected results the student might have gotten.
- Students **produce live video feeds** in which they do the work. Having a video makes them feel the class is serious, and it will help you correct any experimental mistakes.
- Students **take pictures of the key steps** they take in an experiment and write their names on a piece of paper with the date.

Conclusion

- Make sure your *descriptions* are clear and easy to follow.
- Ensure that your *labs* are relevant to your students and have clear outcomes.
- Give timely *feedback and support*, which increases student engagement.
- Discuss common *issues and results*.
- Have fun and be honest. Students will follow *your lead!*

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