



Organic Chemistry

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Attendance #:

Please provide a BRIEF session summary:

These are topics and comments made during the breakout session:

What are you doing in Lab these days?

Do you use Electronic notebooks?: generally find these difficult to manage

Simple prelab; paper notebooks; once a week meeting; 10 people in lab (pretty manageable)

We use a template to teach lab reports at Gustavus

Examples:

Use of paper notebook, lots of links to techniques online; condense the procedure into a bulleted list; can't look at the handout during lab time

Lots of notebook work in Org 1; more report writing in Org 2

Make sure they always have a complete list of reagents with hazards in their notebook

Data analysis important; conclusion writing important

Some, but not many schools are doing oral presentations for Org 1

Just getting back in the classroom this year (faculty member who had been in administration for a number of years): students are having difficulty finishing lab experiments on time (four hours); this is their first class where they work independently.

Suggestions: spreading labs over multiple weeks; have the students work together in groups rather than independently; teach techniques in low stakes situations until their skills are developed; then do the actual labs where they use the skills (like TLC or recrystallization); set the students up in pairs, but then change their partners each week; test for technique skills (e.g. show the instructor how to do the technique, such that the students "pass" the technique); try to intervene with students to make sure they are getting their things done during the lab time; pre-record the pre-lab videos (to save time); partners might increase lab speed, but sometimes students were re-watching the pre-lab videos during lab; students are afraid of making mistakes, so this delays them getting things done; do more extensive prelabs early in the semester, but later in the semester there are no prelabs, so the students need to be better prepared. Lab seems overwhelming for the students;

What is the purpose of lab?

You are going to learn; you might make mistakes or do things differently, but that is OK. If it works, it was a reasonable way to do the experiment. Why is learning these techniques important, if they go on to other fields where they will never use these skills anymore? Writing is important; interpreting data is important; keeping a good notebook is important. People should know about organic molecules; it is important to understand about waste and how to reduce it and where it goes. We especially need to train people who are actually going to be chemists; Org 1 is a good time to do this (rather than kicking it down the road to upper division classes). You need to be aware of what is happening in the reaction. You need to be prepared for lab (have everything ready before you start). Learning in lab translates into other parts of your education. This knowledge will help you battle misunderstandings in the general public about “chemicals”. Students need to think on their own. Working in groups is important for future careers.

We need to teach to the students (not change the requirements) and meet them where they are.

See many of the the same issues with students, even though they might be of similar majors or interests.

Observation: Organic chem is just so new and they don't know anything about the subject, so it becomes a point where they self-select out of particular majors, because Org 1 is so hard (and subsequent classes will be much harder)

How to get rid of methylene chloride? What are you doing at your institution?

It may lead to using worse solvents, so this may not be a good solution (total elimination). Are people going to be monitoring MeCl? You can use badges to monitor for levels. Might be easier to get rid of MeCl in teaching labs, but not for research projects. EAS reaction: use of chlorinated solvents is best; try: bromination of acetanilide in bleach and acetic acid.