



Analytical Chemistry

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Attendance #: 9+2

Please provide a BRIEF session summary:

Went through introductions of those present. Environmental group joined

How should or shouldn't AI be used in our courses? Do we use it in assignments or use it to guide in developing our own resources

- Could it be advantageous to use and help our students use (in the workplace if it can get the job done faster, they may want them to use it)
- Akin to when calculators became larger, want students to understand how the process happens but can use AI to quicken the process
- When you use AI you should cite the website (mention where it was used in the citation)
- Asked students to use this to help brainstorm research ideas and questions, but then students filter
- A workshop mentioned ChatGPT/Gemini is capable of producing "C" level work (if you earned Cs, ChatGPT is better?)
 - Should we expect ChatGPT to be the baseline?
- Webinars are out there to help
- Lots of use are not analytical chemists are not use <https://asdlb.org/>
- Use POGILs as ideas for activities, if you use this commit fully (POGIL a lot), use it as a guide, but as ideas for you
- Is Harris too much titrations? How do you deal with the changing landscape of A chem and trying to teach people the breadth of analytical chemistry reaching into instrumental?
 - Build from acid base gen chem and look into other titrations (protic system chapters use this more towards equilibrium)
 - Without a lot going into instrumental - include mass spec, chromatography, (basic intro, not length)
 - Gravimetric analysis (dropped or in lecture only)
 - Skoog too heavy for instrumental? Just too much (small readings from this with the Harris as main)
 - Gram plot lab involved in part
 - Titrating a vitamin C tablet and in juice (back titration vs direct titration)
 - EDTA titrations

- Electrochemistry
 - Ion selective electrodes - important in environmental applications
 - In instrumental really digging into the electrodes and the interactions go into this
 - Center around blood glucose meter (charge or current), control electrode - little more exciting
 - For sure teach them CV
 - Harris text doesn't give complete Echem, good paper is <https://pubs.acs.org/doi/10.1021/acs.jchemed.7b00361> or Kissinger
 - Batteries are a big deal - it's
 - Quick E-Chem in a Box <https://pineresearch.com/shop/products/applications/echem-in-a-box/standard-bundle/echem-standard-bundle/>
 - Key concepts for electrodes
 - Nernst equation - apply potential, sets the concentration, **diffusion**, explain CV
- Teaching a lot of biochemists but we have instrumental
 - Prereq of Ochem 1
 - Elective in the Biochem degree
 - Can't take instrumental in Bio grad school, can take bio electives
- Lab rotations, 4 different labs going at the same time, lab assistants help with the troubleshooting, nice decision making opportunity
 - First group to do the rotation is the expert group (second group to do this need to improves upon the prior rotation, expert group can help)
 - Video taped how to use all the equipment, can have students to watch the videos, learn about the equipment while the instructor meets with other groups, and then rotates between the groups
 - Practice makes the timing a lot easier to figure out
 - SOPs for different instruments, have the students help build these
- How to deal with old equipment (can't easily connect to a computer)
 - Just use to show what is in there
 - Go in and take it apart. They have to put it back together
 - Super applicable to service engineer jobs (great wealth of knowledge from this)
- How can we help students learn about careers in chemistry
 - When service engineer came had them talk through things
 - Gen chem I career presentations (different things you can do with a chemistry degree, pitch the career to the class)
 - Panels of alumni (students respond really well), lot of convos that don't involve the faculty
 - People come in and talk about their career as a part of a course (chemistry or science based)
 - Bring in someone once a week to a class, students asked for it to be earlier
 - Tour a lab in industry