

How to Prepare for Analytical Literature Seminar

The exact details of planning and giving Analytical Seminar vary slightly depending on which faculty member is supervising each semester. Be sure to confirm with appropriate faculty that what is expected corresponds to what appears here.

Schedule

June: request seminar date

June – August: schedule arranged

Presentation date – 6 weeks: select topic

Presentation date – 4 weeks: outline talk, obtain feedback on scope and content. Begin preparation of visuals.

Presentation date – 2 weeks: practice talk for seminar supervisor; commence practice with research group members. Prepare abstract and get feedback on form and content.

Presentation date – 1 week: distribute abstract.

Presentation date + 1 week: obtain evaluation.

Topic

Any topic that emphasizes measurement science, broadly defined, is fair game for Analytical Seminar. Restrictions are:

- Topic can not have been presented in the previous 5 years or during your tenure at UIUC, whichever is longer.
- Topic can not overlap with the research areas you regularly deal with. Something outside the scope of your research group's interests are preferred, but something sufficiently distant from your own work, even if within your group's scope, may be acceptable (i.e. one need not avoid all biological problems simply because one's research involves chemical biology). If in doubt, choose something more distant from your work to broaden your horizons.
- Choosing a topic where someone at Illinois is an expert may seem to have the advantage that there's ready expertise to help with content, but the extent to which you'll stretch yourself is limited. Furthermore, if you don't consult that expert, you may face an audience member more knowledgeable than you. The questioning can get "interesting."
- The topic must be approved by your research advisor and the seminar supervisor.

Good places to look for topics are *Analytical Chemistry* A-page articles, *Science*, *Nature*, and *J. Am. Chem. Soc.*

Content

A good seminar addresses a problem, not a technique. The problem may be solved with a variety of techniques, some of which can be critically discussed. By focusing on a problem, one avoids getting to the end of the presentation and having the first question be, "that's all very nice, but couldn't you do the same thing with _____ that costs 1/10th as much, takes 1/10th the time, and can also do xxx?" The topic should be timely; if there isn't a significant amount of

literature on the topic published within one year preceding the topic, it probably isn't timely. If the topic is heavily covered in undergraduate textbooks, it almost certainly is inappropriate.

The seminar should present the problem, explain why the problem matters, explain why it is of current interest to solve, present approaches to solution of the problem, and project where additional work may be needed. Because this is analytical seminar, issues in measurement science should be a central component of solving the problem. Critical evaluation of the literature, noting especially ingenious approaches, contradictions, oversights, or connections to historical developments make for an interesting presentation.

Format

Slide layout is sometimes challenging at first. Too little material on a slide looks insipid. Too much material makes it impossible for the audience to get oriented or to absorb the material in the time the slide is visible. Clipped phrases are easier to absorb than sentences. This instruction sheet is difficult to absorb because it is so verbal and lacking in figures. Don't let this happen to your slides! Prof. Suslick has prepared a Seminar on How to Present a Seminar. Attend it before preparing yours.

Plan for the seminar to run about 45 minutes, allowing 5 minutes for questions. If you have a choice, running 40 minutes is better than running 50 minutes. Be aware that most people deliver their actual seminar somewhat more rapidly than their practice talks. Seminars less than 35 minutes long are not acceptable.

Delivery Practice and Pointers

A formal presentation need not be stiff, but should exhibit professional demeanor. Maintain eye contact with the audience. Visuals should support the speaker, not lead the speaker. Avoid "Death by PowerPoint," where the speaker reads the slides to the audience (the audience can read for itself). While some word-dominated slides are inevitable, pictures and diagrams are more useful. When using the laser pointer, aim at a point, do not orbit the region to which attention is directed. If the laser is perpetually moving, so will the eyes of the audience, and they'll rapidly tire. This is a talk, not a ping-pong match! It should be evident from reading this paragraph that one can avoid the use of second person ("you") unless someone in the audience is being specifically directed to think of themselves as involved in what is being said. Thus, "This is your sample" is typically not what is meant – "This is a sample." "This is the sample." But "If you put yourself in the analyst's position, you would see a sample that"

While accomplished speakers may be able to give fluent talks off the cuff, those with little public speaking experience can not. Give the talk to your research group, and listen to their suggestions of how to improve the content and form of the talk. Talk to the mirror, and pay attention to nervous habits, fillers (um, uh, like, you know, ...), and other distractions. The audience should be able to focus on content, not irritations.

It is common for seminar preparation to go through identifiable stages: "I'll never find a good topic." "There's too little to talk about." "There's too much to talk about." "This talk is

horrible." "I peaked too soon." "I never want to see this material again." If you practice too little, the presentation will be awkward. If you practice too much, it will be dull and flat. A few butterflies when you get up to talk are healthy (adrenaline adds energy to the talk), but there's no need to be overwrought; you're talking to your friends and colleagues.

You should need few notes if the slides are well-thought-out. Usually, one speaks without amplification, but if you are ordinarily very soft-spoken or you come down with laryngitis the day of the talk, a microphone is available.

Abstract

The abstract serves three purposes: to attract an audience, to summarize the material you'll cover and list the most important literature citations, and to provide someone who misses your seminar a way to "break in" to the literature, thus allowing them in hours to learn as much as you learned in weeks in preparing the seminar. The content of the abstract should run 2 – 2.5 pages and include at least one figure per page. The literature citations should include titles as well as other bibliographic information. Abstract plus citations should be no more than 4 sides of 8 ½ by 11 paper, photocopied double-sided for compactness.

Evaluation

A standard evaluation form, available from the Analytical secretary, should be distributed with each copy of the abstract. Attendees will fill out the form, providing both comments and numerical scores on various aspects of the seminar. The seminar instructor will summarize these evaluations to provide a nuanced picture of how you did.

Each year, by vote of the graduate students, an award is given for the outstanding analytical literature seminar. The Algernon Gorman Award is supported by an endowment, contributed in memory of a UI chemistry student who enlisted in the U. S. Army during World War I, and died in France in October, 1918 of pneumonia (or Spanish flu, of which pneumonia was a complication).

Grades

An approximate grading scale is:

- A : Professionally structured and delivered seminar
- A-: A few problems, but basically a sound presentation
- B+: Not up to UIUC standards, but substantive presentation
- B : A passing grade, but a strong statement that the seminar had significant flaws
- <B : Failure. It is unlikely that anyone who follows the advice in this writeup will have to be concerned about such a grade.