**CH 5900 Seminar Preparation Skills**        (Spring 2013)

**Instructor:** Dr. P. Heiden  
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**Contact:** 7-3452; paheiden@mtu.edu  
**Meeting:** M. 3:05 – 3:55 PM Chem Sci Room 101

**Objective**  
This course will give you opportunities to practice and improve basic professional skills, including writing abstracts, preparing and presenting posters, and giving oral presentations. If time permits you will also be given the chance to review a professional manuscript. If you are not familiar with Web of Science and EndNote you may take one class period to take a library tutorial.

**Assignments**  

**2nd year graduate students:**

1. Give constructive feedback to speakers in this course (in class and online) and on posters.
2. Prepare and present a 35 min presentation to the class on your Ph.D. project. Your talk should do the following:
   a. Review the literature that is most relevant to your research;
   b. Present the objective and value of your research project and why it is novel;
   c. Your preliminary results if you have them.
   d. Prepare a professional 1 paragraph Abstract;
   e. Post your Slides, Abstract, and 2 relevant papers on the Canvas web page.
   f. Present your talk and answer all questions. You should invite your advisor and committee to your talk.

Your grade will be based on class attendance (~5%), the quality of your presentation (75%), and the quality of feedback you give to your classmates (20%).

I will evaluate your presentation on the following:

- the quality of your slides: clarity, appearance (hierarchy and grouping), organization, properly identified tables and graphs complete with units, and give proper attributions.
- the quality of your oral presentation: how well you explain things, how well you justify your project, how well you answer questions.

**1st year graduate students:**

1. Give constructive feedback to all the other speakers in this course (in class and online) and on posters.
2. Get your research advisor to give you three research papers relevant to your research. Then prepare and present two 10 min oral presentations on two of these papers. Your talk should do the following:
   a. Present the objective and value of the paper
   b. Present the results of that paper
   c. Conclude with both the authors and your assessment of the value of their research.
   d. Post your Slides, paper, and 2 other relevant papers on the Canvas web page.
   e. Present your talk and answer all questions.
3. Prepare a poster on the paper you will use to give your oral presentation.
Grade Percentage Points Grade points/credit Rating
A  90-100%   4.00  Excellent
AB  85-89%    3.50  Very good
B  80-84%    3.00  Good
BC  75-79%    2.50  Above average
C  70-74%    2.00  Average
CD  65-69%    1.50  Below average
D  55-64%    1.00  Inferior
F  <55%    0.00  Failure
I  Incomplete; given only when a student is unable to complete a segment of the course because of circumstances beyond the student's control.

Collaboration/Plagiarism Rules
See the Academic Integrity Code of Michigan Tech (link given below).

University Policies
Academic regulations and procedures are governed by University policy. Academic dishonesty cases will be handled in accordance the University’s policies. If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act, please see me as soon as possible so that we can make appropriate arrangements. The Affirmative Action Office has asked that you be made aware of the following: Michigan Tech complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. If you have a disability and need a reasonable accommodation for equal access to education or services at Michigan Tech, please call the Dean of Students Office, at 487-2212. For other concerns about discrimination, you may contact your advisor, department head or the Affirmative Action Office at 487-3310.

Academic Integrity:  http://www.mtu.edu/dean/conduct/policy/academic-integrity/
Affirmative Action:  http://www.admin.mtu.edu/aao/
Disability Services:  http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability
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<th>Date</th>
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<td>January 28</td>
<td>Soha Albukhari, Ashok Khanal</td>
<td>2nd year, 1st Year Talk #1</td>
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<td>February 4</td>
<td>Ni Fan, Xie Fei</td>
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<td>February 11</td>
<td>Ashli Fueri, Robert Brown</td>
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<td>February 18</td>
<td>Sarah Hopson, Xin Yan, Shanshan Hou</td>
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<td>February 25</td>
<td>Chelsea Nikula, Ashok Khanal</td>
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<td>Melanie Talaga, Xie Fei</td>
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General Details for Oral Presentations

The week before your presentation you should email the entire class an Abstract, a copy of your overheads, and complete and properly cited references, so the class can review these in advance. An abstract is a one paragraph summary of your talk. It generally starts out with a brief introduction of a topic and why it is a topic worth discussing. Then it usually proceeds to a statement of the problem you are going to discuss, followed by your approach and a general or specific statement of results. It also always comes with a title, your name, and your professional affiliation. To see how to properly cite a reference you may check an ACS Style Guide or just look at Web of Science citations.

People will be spending their valuable time listening to you. You should practice your talk in advance so you are sure what you want to say about each slide and sure that your talk is the proper length. It is bad manners to have a talk go too long. You should also always make sure your slides are visible at the furthest end of the room you will be speaking in. This includes making sure that the numbers, units, captions, code keys are clearly visible in figures and tables. In fact, everything on your slides should be readable from every part of the room you will present in.

Most presentations at professional meetings are 20 minutes total and are intended to be ~15 minutes of presentation and ~5 minutes of questions. Most academic or industrial presentations are ~40 ± 5 minutes. Our presentations here are of a length designed to allow everyone to present their research in the allowable class time.
To Review a Paper:

You will read a paper and review it as if it is a manuscript submitted to a journal and you are deciding if it is publishable or not. After reviewing the paper you are to write a review and “grade” the manuscript as:

- Publish without revision
- Publish with Minor Revision – List corrections to be made (to be sent to author)
- Publish with Major Revision – List corrections to be made (to be sent to author)
- Do not Publish – State why it should not be published. (e.g. the paper contains significant flaws or has no originality and so does not merit publication, or the contents are not suited to the “mission” of that journal).

Things you should look for and include in a written review:

- First, carefully read the paper and assess the value of the paper by determining if the work is significant (important) and highly original. You should also check Web of Science to look at related literature to see if there is significant work in the area that you are not aware of. A very important paper makes some sort of important conceptual contribution to the literature as opposed to a good paper that perhaps reports an unexpected phenomenon (e.g. conductivity in some unexpected place). A low impact paper would be one that more or less supplies new examples of known phenomena (e.g. making and reporting properties of a new Nylon made form a new diamine or diacid).
- Once you have assessed the value and impact of the work check to make sure the impact and the type of work are consistent with “mission” of the journal.

The two items above are the MOST important and most time-consuming responsibilities of a reviewer. You should start with these items in your review. If you conclude the work is not original enough or insufficient impact for the journal then you must support you’re claims including citing references from the literature. Also, the paper may be high impact but still not appropriate for that journal, in which case you reject the article and explain why AND if you know suggest other journals that it might be better suited for.

Once you have determined these issues if you conclude the sufficiently original and appropriate for the given journal then the next most important thing is:

- determine if the experimental data support the conclusions or if there are any fundamentally incorrect assumptions or conclusions made. If there are significant or major errors then you must state what these are AND support your answer with facts and citations.

If these major areas prevent publication then you can complete your review here and return your review, or if you like even though you plan to reject the paper you can continue your review for more minor issues.

If there are no major errors, or if there are and you plan on doing a complete review then continue to check for the following (in no particular order of importance).

- Check spelling, make sure figures, tables, and references are numbered correctly.
- Each figure and table should be mentioned in the text in proper order (i.e. Figure 3 should be mentioned before Figure 4, etc.).
- Check each figure for accuracy (especially chemical structures and equations).
- Make sure all numbers have proper units.
• Do the authors make claims of significant differences in data without proving the difference is significant (e.g. do the authors claim some significance to a small difference in LCST (e.g. ± 1 °C) without doing any replicates to support that the difference is significant? Or, do the authors claim some significance to a difference in M_w when the M_w is 35,000 ± 5,000 and the other sample is M_w 40,000 ± 5,000 Da).

• Are all the conclusions supported by experiment?

• Do the authors need all the figures and tables or could some be removed without damaging the value of the paper. (For publishers, space is money. They want the highest impact papers with the least use of space.)

• Is the article too long or too short to successfully prove the main points of the paper, or is the value of the paper so little that it either does not merit publication, or perhaps should be published but as a much shorter article.

• Is the Introduction suitable to support the research? Are there significant omissions of other work that should be acknowledged? (If you do not know then check Web of Science to determine this).

• Does the data support the conclusions the authors have made? Or are conclusions incorrect? Or are conclusions probably correct but not supported by data?

• Are any major questions raised by the data that the authors should have answered but did not? Some questions perhaps cannot be answered but the authors should acknowledge they exist.

• Are the experiments done properly or were they inappropriate for some reason for the data claimed from them? Were there adequate controls? Was a statistical analysis needed?

• Was the paper well written or poorly written? You can state that the paper in its entirety or a portion of the paper needs to be re-written because it is poorly written, or because the English is poor.

To write your review:
First briefly (in 1-2 sentences) summarize the work the authors did and state the main significance of the paper, if it is high impact, how original it is, and if it is appropriate to that journal.

The state where this manuscript stands in respect to current literature...e.g. does it build on someone else's known research (it usually does, it is a rare papers that reports something 100% new), or is it completely derivative or reproduce someone else’s known research? Or, perhaps you feel the work is original but very narrow (i.e. applicable to just a very narrow range of materials). So in general here is where you try to assess the value of the work with specifics, including if appropriate, making suggestions for how to make the work more broad-based or significant.

Finally, you can list specific issues or errors, ranging from incorrect spelling or numbering, to poor quality images, or over-reaching conclusions based on data, a badly written or confusing or contradictory section in the paper, etc.