Objective
To gain skills in designing a professional presentation, including writing an appropriate abstract, selecting and organizing content, preparing presentations as overheads or as a PowerPoint presentation, and delivering the presentation. Secondary objective: Gaining and understanding of how to analyze and review professional literature, outline a paper, and submit manuscripts.

Tasks
If you are a 2nd year graduate student: you have 4 required assignments.

i) attend class and give constructive feedback on all the other speakers.

ii) review the literature relative to your graduate research, and prepare a 40 min presentation based on that review and the objective and value of your research project. Be sure to reference all the work in your review and list the full citations at the end of your presentation.

iii) write a professional Abstract for your presentation, and email the abstract and your presentation to me, to your advisor, and to your classmates, 1 week prior to your presentation.

iv) present your talk and answer all questions.

Your grade will be based on attendance (10%), the quality of your slides (45%), and the quality of your oral presentation (45%). Your slides should be well organized and present the information clearly and accurately. Figures and Tables should be properly identified and include proper units where appropriate. You must cite all your references (be thorough) so others can look them up if desired. Your oral presentation must be clear and also show your knowledge and understanding of the Historical part of your talk. You should be able to defend the novelty and significance of your research based on the prior work, so you need to know what “weakness” there is in the literature to justify your research. You need to be able to answer all questions the class or I or your advisor may ask.

If you are a 1st year graduate student: you have 4 required assignments.

i) Assignment 1. Read your assigned paper. Write a suitable abstract and conclusions for your assigned paper. Also, use Microsoft Word, or Excel, or any other suitable program (do not just copy and paste, or Photoshop) to remake each table and figure in your assigned paper. You are to use color and symbols for your figures, but also make sure that when printed out in black and white all the data can be seen. You will be graded on the quality (clarity of data presentation, accuracy, overall appearance) of your tables and figures.

Due date: For credit follow these directions completely. Print out your Figures and Tables and staple them together with your name on them. Clip these together with your Abstract, Summary, and your assigned paper, and place them in the basket outside my office by Wednesday, January 25, 2012.

ii) Assignment 2. Prepare a 12 ± 2 minute PowerPoint presentation on the same paper you were assigned to use for Assignment 1. You may use any of the tables or figures you made for Assignment 1 if you wish to, but it is not required. You will be graded on the following: your presentation must be understandable, teach the class something useful from the paper, use slides effectively but the slides must not be too wordy. You will lose points if your presentation is too long or too short, or if you fail to communicate something useful, if your slides are of poor quality or any part of a figure or font is not visible throughout the room, poor spelling, and/or if you are just “reading your slides” as opposed to using your slides to help you teach something. Also, do not just accept PowerPoint formats; use appropriate spacing and hierarchy to make your slides presentable. Be sure to check the sizes of your fonts
before hand to make sure tables and figures and captions are visible to people in the back of the room. **Presentations are expected to be in Weeks 1 and 2 of February. All class members are expected to provide Constructive Verbal Feedback after each presentation to help your classmates improve.**

iii) **Assignment 3.** Go to the library or to your advisor and get 2 related papers on a subject of interest to you. Read the two papers and **Outline these papers** as directed on the following page. Also, you are to **select one of these papers and review it** as if it were a manuscript submitted to a journal for publication. You will find directions on how to do this on the pages that follow. **Use a word program and be sure that all words are spelled correctly and the grammar is correct.** Turn in your papers, your outline, and your written review when directed to. If your advisor has a manuscript s/he is reviewing then you may review that instead of an already published article.

iv) **Assignment 4.** Prepare an 18 ± 2 minute oral presentation on the two papers from Assignment 3. Be sure to combine the two papers into an intelligent, interesting, cohesive, and educational presentation. You will be graded on the quality of your presentation, including presenting the information from the two papers in a cohesive manner, being understandable, using slides effectively, etc. You will lose points if your presentation is too long or too short, or if you fail to communicate something useful, if your slides are of poor quality or any part of a figure or font is not visible throughout the room, poor spelling, and/or if you are just “reading your slides” as opposed to using your slides to help you teach the class something useful. **All class members are expected to provide Constructive Verbal Feedback after each presentation to help your classmates improve.**

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/](http://www.mtu.edu/dean/conduct/policy/academic-integrity/)
Affirmative Action:  [http://www.admin.mtu.edu/aaio/](http://www.admin.mtu.edu/aaio/)
Disability Services:  [http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability](http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability)
To Outline a Paper:

i) Read the Abstract and describe the major value of the paper in 1-2 sentences.

ii) Number each paragraph in the Introduction, and state the purpose of each paragraph (why is each paragraph in the paper?) in 1-2 sentences.

iii) Are any of the paragraphs in the Introduction not needed? Could they be omitted without hurting the paper? If so, why are they not needed?

iv) Is any valuable information missing from the Introduction? If so, what is it and why should it be there (e.g. use web of science and see if there are any other papers that should probably have been discussed in the introduction.)

v) Read the Experimental Procedures and do a “thought experiment”. Could you go into the Lab and reproduce every experiment based on what was said in the Experimental? If not what other information should have been included?

vi) List each major point and claim made in the Results and Discussion. Is there any claim made that the data do NOT prove or is there another possible explanation for the data besides the explanation given by the authors?

vii) Were any experiments/data not needed to prove the points or claims made in the paper?

viii) Does the merit or value described in the summary enhance the value of this paper? By that, I mean does this paper teach anything more valuable than just giving experiments to describe a specific polymer or reaction? Is there any wider impact? In your opinion is there any work or finding that could have been done that would increase the impact of this paper?

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 from 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 your 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.