

GUIDELINES FOR SECOND-YEAR SEMINAR PREPARATION MCMP GRADUATE STUDENT SEMINAR PROGRAM (MCMP 696)

I. The Departmental Seminar Course

Four important skills critical to the professional development of graduate students are: (1) The ability to learn and integrate information from the primary scientific literature; (2) The ability to critically evaluate the primary literature; (3) The ability to formulate hypotheses and design experiments to test hypotheses; and (4) The ability to deliver accurate, concise, and clear oral presentations. To promote the development of these skills, the Department of Medicinal Chemistry and Molecular Pharmacology (“MCMP”) requires graduate students to participate in a seminar program. Each Ph.D. student in the MCMP department is required to participate in MCMP 696. The requirement is the same not only for students who entered Purdue with a B.S. degree, but also for those who entered with an M.S. degree from another institution. PULSe students pursuing dissertation research in the laboratory of an MCMP faculty member may participate in MCMP 696.

II. Topic Selection

A faculty member other than the student’s dissertation advisor will serve as seminar advisor and assist student in selecting a seminar topic and in preparing a seminar. The topic should not be directly related to the student’s thesis research. The students should consult potential seminar advisors prior to selecting a topic to ensure availability of topic and advisor. To help in identifying a topic and an advisor, a list of topics and advisors will be provided by the Seminar Coordinator.

THE FINAL APPROVAL OF THE SEMINAR TOPIC AND ADVISOR RESTS WITH THE SEMINAR COORDINATOR.

III. Preparation of the Seminar

A. Timeline for Seminar Preparation

Orientation Meeting Prior to the beginning of the Fall semester, the Seminar Coordinator will convene a meeting of all second-year graduate students participating in the seminar program. At this meeting the Seminar Coordinator will review the guidelines with the students.

Topic Selection After the meeting the students will begin the process of topic selection. The student must inform the Seminar Coordinator of the proposed topic and the potential seminar advisor for approval.

Scheduling When the topic is approved, the student may schedule the seminar date. To have enough time for preparation, students are advised to identify the seminar topic no later than six weeks before the seminar date. The seminar date should be considered flexible in the unlikely event that there could be difficulty in scheduling outside speakers.

Literature Survey During the next two to four weeks the student should read primary literature germane to the seminar topic. Reading selections should be directed in part by the seminar advisor. During this period the student should have periodic meetings with the seminar advisor to discuss the readings and to begin formulating the hypothesis and the seminar abstract.

Hypothesis Formulation Four weeks prior to the seminar date, the student must provide the Seminar Coordinator with the hypothesis to be discussed.

Dry Run Three weeks prior to seminar date the student should have a "dry run" of the seminar with the seminar advisor. This will ensure that sufficient time will remain for additional literature work and extensive changes.

Abstract and Slide Draft Two weeks prior to the seminar date the student must provide the Seminar Coordinator with the "final" version of the abstract. This final version of the abstract must be approved by the advisor before submitting it to the seminar coordinator. This will ensure that the Seminar Coordinator has sufficient time to duplicate and distribute the abstract. At the same time, the student must have a draft version of the PowerPoint presentation available for review by the Seminar Coordinator.

Final Slides One week prior to the seminar date the student must provide the Seminar Coordinator with the final version of the presentation slides for approval.

Students should not request a postponement of their seminar for other than serious reasons (sickness, etc.). The purpose of the firm guidelines and dates is to ensure that the student is given adequate time to prepare the seminar by the required date. An example timeline for seminar preparation is attached to this document.

B. Seminar Abstract

A portion of the seminar grade will be based on the abstract. The abstract will be graded according to the adherence to accepted principles of English grammar and according to the adherence to the format described below.

The seminar abstract is an important record of the coverage of your topic and provides a valuable source of leading references for students and faculty alike. Accordingly, the abstract must serve as an introduction to your seminar topic. It will include the key hypotheses, the major scientific findings and a brief conclusion. **The abstract will be limited to 500 words, excluding figures, tables and references.** The abstract will include references to the research articles upon which the seminar is based as well as research articles that have served as key background material. The references should be listed using a standard format that includes the title of the article as well as all of the authors of the article.

C. The Seminar

The following points are particularly important and should be noted carefully.

1. **The seminar should not be merely a recital of facts.** This means that the seminar should not be overly general, and the scope should be carefully defined and restricted. Seminars in the nature of very general overviews with little or no data in the style of Scientific American articles will receive a failing grade.

2. **The scientific hypotheses must be clearly presented.** The best way to do this is having a slide titled ‘hypothesis’ after the background information is presented. The hypothesis needn’t be presented as ‘your hypothesis’ – rather, it can be presented as a prevailing hypothesis in the field that follows logically from the background information.
3. Background information required to place the hypothesis in appropriate context must be presented.
4. Experimental methodology used to test the hypothesis must be described in enough detail so that the audience can understand the techniques.
5. The data used to support or refute the hypothesis must be presented in sufficient detail so that the audience can evaluate the conclusions drawn from the data.
6. The conclusions should be brief, yet bring together the seminar in the context of the original hypotheses.
7. The seminar should conclude with speculation about the directions of future scientific research in this area.
8. The seminar should be approximately **45 minutes in length** with 5-10 minutes left for questions. The following format is suggested: Introduction of hypothesis and background (10-15 minutes); Experimental methods and results (20-25 minutes); Conclusions and future directions (5-10 minutes). Note: seminar length is based on when you start speaking, not when your introduction by the seminar coordinator begins.
9. Presentations using PowerPoint are preferred; other visual aids such as slides, overhead transparencies, etc. may, however, be used at the student’s discretion.
10. **The seminar should not be limited to research published in just one research paper.** The seminar is not a "journal club," but rather is meant to teach you by experience to search and integrate a body of literature. It is entirely permissible that different students can present more than one seminar on different aspects of a research area. The student should NOT necessarily serve as an advocate for the investigator whose work is being discussed (see item ‘2’ above). The student should feel free to criticize or question conclusions if this is warranted. The student should become familiar with novel techniques or reagents through appropriate background readings so that the student can answer basic questions on these subjects.

D. Plagiarism

Plagiarism is the unauthorized use of another person’s ideas or words resulting from improper citation of one’s sources. **It is considered a very serious academic infraction that can lead to failure in a university course.** Before starting your preparation for the seminar, please consult the following websites:

<http://owl.english.purdue.edu/workshops/hypertext/ResearchW/plag.html>

<http://www.georgetown.edu/honor/plagiarism.html>

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

Examples of plagiarism in the context of the seminar include (i) using another person's phrase or sentence word-for-word without quotation marks in your abstract, even if the phrase or sentence is followed by the appropriate reference number from your reference list; and (ii) showing a figure from a journal article in your Powerpoint presentation without including the appropriate bibliographic information at the bottom of the figure.

Please consult with the Seminar Coordinator, Seminar Advisor, or any other faculty member if you have questions about plagiarism.

E. Grades

The grading of the seminar will be based on the following:

1. Did the student adequately describe the hypotheses for the seminar?
2. Was sufficient background material presented?
3. Were experimental techniques adequately explained?
4. Were the results critically presented and evaluated?
5. Did the student provide alternative explanations or hypotheses for the data where appropriate?
6. Did the student explain how conclusions and future directions could be drawn from the data?
7. Was the seminar presented in a professional manner (voice, pace, use of visual aids, enthusiasm)?
8. Did the student exhibit appropriate knowledge of the seminar topic through their ability to field questions?
9. Was the abstract informative and did it adhere to guidelines for content and format, including proper use of English?

The Seminar Coordinator has sole responsibility for assigning the final grade in seminar. (Other faculty members will be consulted to help determine the letter grade.) An "A" grade will be given for an excellent seminar. A "B" grade will be given for a good seminar. A "C" grade will be given for an adequate seminar. Students who receive a grade below "C" are required to present another seminar (the topic choice will be discussed with the Seminar Coordinator). Students who receive a grade of "C" may present another seminar in the hopes of earning a better grade.

Although your grade is primarily determined by your seminar, unexcused absences at the seminar and failure to adhere to the schedule listed in Section III.A will negatively impact your grade. If there is insufficient evidence of progress on your slides and abstract two weeks prior to your seminar (the deadline for the final versions of your abstract and slide draft), your seminar will be rescheduled. This will result in: (1) an automatic deduction of one letter grade; and (2) an email message sent to the department stating: "The seminar by (student name) scheduled for (date) has been canceled due to insufficient preparation".

F. Seminar attendance

You are required to attend all seminars and to fill out an evaluation form. However, we understand there are other seminars that are held at the same time as MCMP 696. You are allowed to miss up to two MCMP 696 seminars to attend other seminars on campus **provided that you get prior approval from the seminar coordinator for your absence.** Unexcused absences will negatively affect your final grade.

Additional Helpful Hints for Preparing Your Seminar

I. Abstract

In your abstract, you should endeavor to use proper English. **Students should consult one or more of the following references prior to writing their abstract to familiarize themselves with appropriate scientific writing style.**

Robert Schoenfeld, "The Chemist's English." VCH, 1985. A concise and well-written little book that addresses elements of scientific English that are frequently misused.

Karen Elizabeth Gordon, "The Transitive Vampire." Times Books, 1985. A concise survey of all the elements of English mechanics, illustrated with amusing and often outlandish examples.

Anne Eisenberg, "Writing Well for the Technical Professions." Harper and Row, 1989. A more comprehensive manual that covers stylistic elements.

University of Chicago Press, "The Chicago Manual of Style." This reference work is the ultimate authority on proper usage, right down to punctuation.

John C. Hodges, "The Harbrace College Handbook," Harcourt, Brace. This "mini" version of the Chicago Manual is a very useful reference work. A number of other "Handbooks" of a similar nature also exist.

Robert Day, "How to Write a Scientific Paper."

Strunk and White, "Elements of Style."

Janet S. Dodd, "The ACS Style Guide."

Robert R. H. Anholt "Dazzle 'em with Style; The Art of Oral Scientific Presentation."

Please note some of the following common errors and try to avoid them:

Dangling participles: "The sample was analyzed using mass spectrometry." "Using" is a verb form used as an adjective; consequently, it must modify a noun or pronoun. Better: "The sample was analyzed with mass spectrometry," or "Mass spectrometry was used to analyze the sample." "Based on" is a highly misused construction, as in: "Based on the results, we conclude that the data are valid." "Based" is also a participle, and must modify a noun or pronoun; it certainly does not modify "we." What does it modify? Nothing! Therefore, it is dangling. Better: "The results suggest (or "lead us to conclude," or "show") that the data are valid." A correct use of "based" is: "The results were based on the data." Here "based" is a predicate adjective that modifies "results."

Misuse of "Due to:" "Due" is an adjective, and therefore should be used to indicate causality only when it modifies a noun. Proper: "The rain was due to the high humidity." ("Due" is a predicate adjective modifying rain.) Wrong: "It rained due to the high humidity." Here "Due" is being incorrectly used as an adverb. Alternative: "It rained because of the high humidity." When an adverb is needed, use "because."

Failure to use possessives with gerunds: A gerund is a verb form used as a noun, and invariably ends in -ing. The following is an example of an often-misused construction involving gerunds: "The hypothesis was proved by us running the reaction." "Running" is a gerund; since "us"

modifies “running,” it must be used as an adjective, namely, as a possessive. Hence: "The hypothesis was proved by our running the reaction."

II. Searching the Literature

One of the most important skills you will learn as a graduate student is the ability to find information in the literature. The seminar presents an excellent opportunity to practice this skill. A good way to obtain important literature is to find a recent review or key paper, and then "snowball" the references from the review. The seminar advisor can provide leading references to assist in the beginning of this process, but the student is ultimately responsible for thoroughly sifting through the literature.

A number of powerful electronic search tools are available for searching the literature. [PubMed](#), the Science Citation Index (accessed through the [Web of Science](#)), and Chemical Abstracts (accessed through [SciFinder Scholar](#)) are extremely useful. Both PubMed and the Web of Science can be used to find review articles (by specifying “reviews” as the document type) and to find other relevant papers that discuss related research. The Seminar Coordinator can provide assistance at using these resources.

III. Preparing Effective Slides

1. **Legibility.** For overheads, a vertical (Portrait) format is preferred whereas for slides a horizontal (Landscape) format is more appropriate. Regardless, be sure that the entire content is visible on the screen. For optimum legibility use a modern, **bold** sans serif font (i.e., Helvetica, Arial) rather than a serif typeface such as Times Roman. Remember, “Bigger is better;” thus, prior to the seminar, ensure that the text and graphs on your slides are visible from the rear of the room (RHPH 164). That is especially true of slides containing spectra, tables, and structural formulas. If using color, remember to maintain high contrast i.e., white letters on dark background. Avoid dark colors with dark backgrounds as well as red and green since many individuals are red/green colorblind.
2. **“Digestibility.”** There is a practical limit to how many bits of new information one can reasonably expect the listener to process from a single slide. Each slide should contain no more than one or two new ideas. Avoid visual aids that are “text heavy.” A graph, schematic, cartoon, or diagram is usually a better way of presenting a concept than a laundry list of text.
3. **Simplicity.** Use a simple, uncluttered format to direct the attention of the audience to the main point of each slide. Tabular data is much harder for an audience to process than a simple graph. Keep colors to a minimum, with no more than three different colors per slide. **Be careful not to overuse animations if using PowerPoint presentations, as this can become a distraction.**

For each data slide or transparency the following format may be helpful:

1. A title should be present on all slides. For data slides, this title should either state the question addressed by the experiment or state a conclusion or “take home” message. Description type titles, i.e. “The Effect of X on Y” are not as helpful to the listener as “Does X increase levels of Y?” or “X increases levels of Y in a dose-dependent manner.”

2. **Give a brief description of the experimental design.** Simply state how the experiment was conducted highlighting appropriate controls.
3. Explain the data. Be sure the audience understands what is being measured or presented. What do the X- and Y-axis represent? What do the symbols, peaks, or other data points represent? The biggest mistake of most presenters (young and old alike) is to assume that your audience knows what you are talking about. The best assumption is that your audience has minimal information about your topic and the types of experiments you are describing.
4. Interpret the data. How do you interpret the results? How do the authors interpret their results? Do you agree or disagree with the authors and what experiments might they perform to strengthen their conclusions?
5. Integrate the present findings with the overall hypothesis. How do the data presented fit into the overall scientific “story” that you are trying to convey to the audience?

IV. Timeline for Completing Second-Year Seminar

Time Period or Deadline	Task to Be Completed
Prior to the beginning of the Fall semester	Attend meeting with Seminar Coordinator to review guidelines; Discuss seminar topics with potential seminar advisors
6 weeks before seminar	Have seminar topic and advisor approved by the Seminar Coordinator
4-6 weeks before seminar	Survey literature and have periodic meetings with seminar advisor
4 weeks before seminar	Provide Seminar Coordinator with hypothesis to be discussed
3 weeks before seminar	Give “dry run” of seminar for seminar advisor;
2 weeks before seminar	Provide seminar coordinator with the “final” version of abstract; Final version of abstract must be approved by advisor before submitting it to the seminar coordinator; Provide Seminar Coordinator with the draft of the presentation slides
1 week before seminar	Provide Seminar Coordinator with the final version of presentation slides; One or two practice runs of seminar with other students or group members to work out rough spots and develop smooth flow for final presentation