

**PSS 301 Plant Science Colloquium
Fall 2009**

Instructor: Deborah Neher, Hills 6, Phone: 6-0474, email: deborah.neher@uvm.edu

Class is held every Friday: Hills 17, 12:50-2:20 pm, 1 credit

Office Hours: By appointment

Textbooks:

Day, R.A. and Gastel, B. 2006. How to Write and Publish a Scientific Paper. 6th Edition, Oryx Press.

Blackboard (bb.uvm.edu) will be used extensively in this course. Additional selected readings from related textbooks will be assigned in addition to a variety of articles published in the Chronicle for Higher Education, Science magazine, Nature, and professional society newsletters. Readings are grouped by category, whether required (Background) or optional (Supplemental Reading). I add a variety of supplemental materials for students who want to learn more about a particular topic. In addition, the powerpoint presentations from class will be posted on the class blackboard page.

Course Concept/Operation

The course will be divided into three components:

1. I will make some brief presentations on topics suggested through correspondence with students and faculty during the past year including: time management, mentorship, scientific integrity, peer review, job market, preparation for an interview, and negotiations of the new job.
2. Students will be expected to give a 10-12 minute Powerpoint presentation during class. Expectations will vary with where you are in your graduate career:
 - a. First year students: an introduction to their research project including a summary of six journal articles of which one is a review article on the topic. The presentation should provide a context of what is currently known on the topic, and the unanswered next question that will be addressed in your thesis.
 - b. Continuing or doctoral students: make an oral presentation of your research findings to date (or Master's research) as you would for a scientific meeting
3. Students will receive a peer review critique of their own writing. The topic will mirror the Powerpoint presentation (see part a. above). You will be expected to provide a writing sample (3-5 pages maximum) to each student and the instructor during class as peer reviewers one week before the date that your name is listed in the syllabus. Each peer reviewer is expected to make editorial suggestion on the writing sample and bring it to class the following week. During the designated discussion time, each peer reviewer should be prepared to return their edits to the writer and verbalize one aspect they liked and disliked about each text. Expectations will vary with where you are in your graduate career:
 - a. First year students: write a draft thesis introduction based on the papers read and presented orally in part 2 above.
 - b. Continuing students: write a results and discussion section of a portion of your thesis or dissertation research including at least one graph or table

Each week, I will aim to spend 20-40 minutes on the 'topic of the week' first and then follow with 20 minute for each presentation and writing critique session including questions and discussion.

Grading

Final grades are based solely on the quality of presentations, effort on writing assignments and participation in discussions. Attendance is expected.

Attendance and Participation	20%
Peer review of Powerpoint presentations	20%

Peer review of Writing samples	20%
Powerpoint presentation	20%
Writing sample	20%

Evaluating the Instructor

At the end of the semester you will have an opportunity to extensively evaluate the course and the instructor. However, you may also send me an e-mail with constructive criticism at any time.

Course Schedule

Week	Date	Assigned reading	Neher topic	Presentation	Writing critique
1	09/04/09	BB articles	Introduction, Time Management		
2	09/11/09	BB articles	Graduate School Success & Mentorship, Timetable Guest – Josef Görres		
3	09/18/09	27, 28	Effective Powerpoint & Poster Presentations		
4	09/25/09	21, 40, BB articles	Peer review	R. Bourgault T. Bradshaw	
5	10/2/09	15, Apx 1	Literature searches – Guest: Elizabeth Berman --meet at Bailey/Howe 123		
6	10/9/09	BB articles	Research process: Proposal through Implementation	J. Bakelaar E. Ishee K. Williams	
7	10/16/09	11, 12, 16, 17, 35	Scientific writing: Methods, Results	S. Castro R. Melnichuk	
8	10/23/09 Deb gone		Career services – Guest: Holly Wilkinson-Ray		
9	10/30/09	9, 10, 13	Scientific writing: Introduction, Discussion, Abstract	T. Nishanthan J. Zirkle	R. Bourgault T. Bradshaw
10	11/6/09	20, 22, 23	Journal articles, authorship & correspondence		J. Bakelaar E. Ishee
11	11/13/09	5, 19, BB articles	Scientific Integrity		K. Williams R. Melnichuk S. Castro
12	11/20/09	BB articles	Grant writing tips; (Hilda Alajajian, Sponsored Research office), Waterman Computer lab 113-T		
	11/27/09		THANKSGIVING HOLIDAY	NO CLASS	
13	12/4/09	36, BB articles	Job skills: application, job market, cover letter, curriculum vitae, interview, negotiations; course evaluation		T. Nishanthan J. Zirkle

Critically Reading Selected Refereed Journal Articles

When you read papers for this course, try to understand what the authors were trying to do and how they went about accomplishing that. I especially want you to see/understand and critique how they interpret their results within the context of the objectives of the research.

Here are some guidelines-things you should know or do while you are reading the paper:

1. What is the overall problem that the investigators are studying?
2. What specific objective(s) or questions is the paper addressing?
3. What is the experimental approach to the question(s)? Here, it will be important to understand the methods that they use in order to be able to evaluate their results.
4. What are the results for each procedure/experiment that make a point? For each point, there will be data in the form of a figure or table, etc. Look at each one; understand what is being shown; make a judgment as to whether it is good data or weak data. If the data is a result of an experiment, determine if the controls are present. There should be positive and negative controls for good experiments. And the negative controls should rule out all other possible explanations for the results other than due to the variable that is being tested. Determine whether the experiment that was conducted actually addresses the question that is being asked. Make a judgment as to whether you think the data support the conclusions reached by the authors.
5. What do you think the next unanswered question is?
6. You should always note things you don't understand or think don't make sense.

Resources

- Booth, V. 1993. *Communicating Science: writing a scientific paper and speaking at scientific meetings*. Second edition. Cambridge University.
- Davis, M. 2004. *Scientific Papers and Presentations*. Second Edition. Academic Press.
- Day, R.A. and Gastel, B. 2006. *How to Write and Publish a Scientific Paper*. 6th Edition, Oryx Press. [\$30 new, \$25 used], 5th edition used is less expensive.
- Elliott, D. and Stern, J.E. 1997. *Research Ethics: A Reader*. University Press of New England, Hanover.
- Katz, M.J. 1986. *Elements of the Scientific Paper: A Step-by-Step Guide for Students and Professionals*. Yale University Press.
- Macrina, F. L. 2005. *Scientific Integrity. Text and Cases in Responsible Conduct of Research*. Third Edition. ASM Press, Washington, DC.
- Yang, J. T. and Yang, J. T. 1995. *An Outline of Scientific Writing: For Researchers With English As a Foreign Language*. World Scientific Publishing.

You know that I write slowly. This is chiefly because I am never satisfied until I have said as much as possible in a few words, and writing briefly takes far more time than writing at length.

– Karl Friedrich Gauss

