Biology 350 - Junior Colloquium

Cedar Crest College
Fall 2010 Syllabus

Section	Room	Instructor	Office Hours, office, phone, email
00 Mon 1:00 - 2:15 PM	Miller 20	Dr. André Walther	Tuesdays 9:30-11am, Wednesdays 10-11am awalther@cedarcrest.edu Miller 25, x3513
01 Tue 1:00 - 2:15 PM	Miller 20	Dr. Amy Faivre	Tuesdays 12-1pm and by appointment aefaivre@cedarcrest.edu SC119a, x3580

Required Text: McMillan, V.A. 2006. Writing Papers *in the* Biological Sciences. 4th ed. Boston, MA: Bedford Books.

Objectives

Junior Colloquium has been designed to help you prepare for your future at Cedar Crest and beyond, and to provide you with the skills to find success in your chosen path. We will be addressing many topics including career goals, preparation of resumes, searching for summer internships, prospective jobs and graduate schools, preparation of cover letters and applications, interviewing skills, and oral, written and internet communication skills.

The semester will also include topics that will help you define and pursue a research or teaching project. You will select a mentor and prepare a proposal. We will discuss computer usage for graphics and presentations, preparation of visual aids, how to write research proposals, and how to present a paper at a scientific meeting. In addition, you will be learning more about how to search on-line databases for articles related to your proposed research and the internet for information about internships and career information.

Throughout the semester you will be doing a fair amount of writing and speaking. Always keep in mind that the class should be working as a team, working to strengthen weaknesses and to become more aware of our strengths. Strive to help one another.

Outcomes/Assessment

Upon successful completion of the course, students will:

- Demonstrate scientific and quantitative reasoning. This will be assessed through leading and participating in primary literature discussions and by planning a research project.

- Demonstrate technological competence and information literacy. Projects to develop and assess this will include creation of a presentation, use of graphics software, and a search and summary of information gained through an electronic database.

- Demonstrate communication ability. Oral presentations, practice interviews, literature discussions, and a written research proposal will be guided by faculty members and assessed.

Course Schedule - Monday Section		
Class	**Date**	**Topics / Assignments**
1	Aug. 30	Introduction; Career Paths in Science; Citations and Plagiarism, Lab Safety
--	Sept. 6	Labor Day - no class
2	Sept. 13	Summer Internships, Career Planning and Resumes
--	**Tues.** Sept. 14	Faculty Research Previews – 11:30 AM to 1 PM, OBC 1
3	Sept. 20	Interview & Resume Workshop; Strategies for Interviewing
--	**Sept. 21 -Oct. 8**	*Individual Interviews with Faculty as Scheduled*
4	Sept. 27	Presenting a Journal Seminar, Literature Searches and Preparing Research Proposals
--	**Tues**. Sept. 28	Lunchtime Panel Discussion on Grad School – *location to be announced*
5	Oct. 4	*Journal Seminar Discussions, Week I*
--	Oct. 11	Fall Break - no class
6	Oct. 18	*Journal Seminar Discussions, Week II*
7	Oct. 25	*Journal Seminar Discussions, Week III*
8	Nov. 1	*Journal Seminar Discussions, Week IV*
9	Nov. 8	Scientific Writing, Citations, and Peer Review
10	Nov. 15	Presentations, PowerPoint, Meetings and Societies
11	Nov. 22	Scientific Graphics / Graphics Workshop
12	Nov. 29	*Proposed Research Presentations, Week I*
13	Dec. 6	*Proposed Research Presentations, Week II*
14	Dec. 13	*Proposed Research Presentations, Week III*

Lunchtime Meetings

The lunchtime meetings are optional, but highly recommended. They will provide an opportunity for learning more about the research areas of departmental faculty and provide an informal discussion of graduate school with panel participants from the faculty.

Assignments - Monday Section			
Class	**Date**	**Assignment Due (in class, unless noted)**	**Point Value**
1	8/30		
2	9/13	Careers in Science Assignment	20
---	9/14	Attendance at Faculty Research Previews	(5^{+})
3	9/20	Internship Search and Cover Letter Resume First Draft Selection of Research Sponsor (Signed form) and Topic	20 10 5
--	**9/21 - 10/8**	Individual Interviews with Faculty as Scheduled	25
4	9/27	Plagiarism Certificate	10
5	10/4	One-page Summary of Research Project Journal Seminar Presentation – Classes 5-8	20 35
6	10/18	Final Resume (with first draft attached) Literature Search Assignment	20 30
7	10/25		
8	11/1	TWO copies of Draft of Research Proposal Due in Class Peer review Format check	 10 5
--	**11/3**	Draft of Research Proposal Due to Sponsor by 5 PM	5
9	11/8		
10	11/15		
11 --	**11/22**	Poster Assignment Due Written Research Proposals Due BY 5 PM TO YOUR INSTRUCTOR (with sponsor and peer reviews attached)	20 65
12	11/29	Final Research Presentation – Classes 12-14 Graphics Assignment Due	50 20
13	12/6		
14	12/13		
		Total point value	**370**

$^{+}$bonus points

Grading

Your grade will be based on the assignments described above. 5% of the total points available will be deducted from your grade for every day an assignment is late. Letter grades will be assigned as follows based on total points earned:

A	344 - 370	**A-**	333 - 344	**B+**	322 - 332
B	307 - 321	**B-**	296 - 307	**C+**	285 - 295
C	271 - 284	**C-**	259 - 270	**D+**	248 - 258
D	222 - 247	**F**	0 - 221		

Course Schedule - Tuesday Section		
Class	**Date**	**Topics / Assignments**
1	Aug. 31	Introduction; Career Paths in Science; Citations and Plagiarism, Lab Safety
2	Sept. 7	Summer Internships, Career Planning and Resumes
--	**Tues**. Sept. 14	Faculty Research Previews – 11:30 AM to 1 PM, OBC 1
3	Sept. 14	Interview & Resume Workshop; Strategies for Interviewing
4	Sept. 21	Presenting a Journal Seminar, Literature Searches and Preparing Research Proposals
--	**Sept. 21 -Oct. 8**	*Individual Interviews with Faculty as Scheduled*
--	**Tues**. Sept. 28	Lunchtime Panel Discussion on Grad School - *location to be announced*
5	Sept. 28	*Journal Seminar Discussions, Week I*
6	Oct. 5	*Journal Seminar Discussions, Week II*
--	Oct. 12	Fall Break - no class
7	Oct. 19	*Journal Seminar Discussions, Week III*
8	Oct. 26	*Journal Seminar Discussions, Week IV*
9	Nov. 2	Scientific Writing, Citations, and Peer Review
10	Nov. 9	Presentations, PowerPoint, Meetings and Societies
11	Nov. 16	Scientific Graphics / Graphics Workshop
12	Nov. 23	*Proposed Research Presentations, Week I*
13	Nov. 30	*Proposed Research Presentations, Week II*
14	Dec. 7	*Proposed Research Presentations, Week III*

Lunchtime Meetings

The lunchtime meetings are optional, but highly recommended. They will provide an opportunity for learning more about the research areas of departmental faculty and provide an informal discussion of graduate school with panel participants from the faculty.

Assignments - Tuesday Section			
Class	**Date**	**Assignment Due (in class, unless noted)**	**Point Value**
1	8/31		
2	9/7	Careers in Science Assignment	20
3	9/14	Internship Search and Cover Letter Resume First Draft Attendance at Faculty Research Previews	20 10 (5+)
4	9/21	Selection of Research Sponsor (Signed form) and Topic Plagiarism Certificate	5 10
--	**9/21 – 10/8**	Individual Interviews with Faculty as Scheduled	25
5	9/28	Journal Seminar Presentation – Classes 5-8	35
6	10/5	One-page Summary of Research Project	20
7	10/19	Final Resume (with first draft attached)	20
8	10/26	Literature Search Assignment	30
9	11/2	TWO copies of Draft of Research Proposal Due in Class Peer review Format correct	 10 5
	11/4	Draft of Research Proposal due to sponsor by 5 PM	5
10	11/9		
11	11/16	Poster Assignment Due	20
--	**11/22**	Written Research Proposals Due BY 5 PM TO YOUR INSTRUCTOR (with sponsor and peer reviews attached)	65
12	11/23	Final Research Presentation – Classes 12-14 Graphics Assignment Due	50 20
13	11/30		
14	12/6		
		Total point value	**370**

[+]bonus points

Grading

Your grade will be based on the assignments described above. 5% of the total points available will be deducted from your grade for every day an assignment is late. Letter grades will be assigned as follows based on total points earned:

A	344 - 370	**A-**	333 - 344	**B+**	322 - 332
B	307 - 321	**B-**	296 - 307	**C+**	285 - 295
C	271 - 284	**C-**	259 - 270	**D+**	248 - 258
D	222 - 247	**F**	0 - 221		

Assignments

Additional details of all assignments will be discussed in class.

Careers in Science

Objectives: Many times this semester we will be talking about your choice of career for the future. There are a number of careers that you have to choose from that will incorporate aspects of your degree in the biological sciences. Let us explore what types of careers one might pursue if one is interested most in research, most in teaching, or most in service in the sciences.

Assignment: Use the internet to locate information on three different careers in the sciences. Find out about a job that would involve mostly conducting research in the sciences, a job that would involve mostly teaching in the sciences, and find out about a job that would involve mostly providing service to others using scientific training or knowledge.

Plagiarism Tutorial and Certificate

Objectives: One of the many challenges of scientific writing is the correct incorporation of material written by other scientists. The convention in most scientific disciplines is to use restatements of written texts rather than direct quotations. Accomplishing successful paraphrasing without resorting to plagiarism is difficult. This assignment will help you learn to use external sources correctly in your writing.

Assignment: The Indiana University Department of Education maintains an excellent tutorial program for understanding plagiarism. Go to http://education.indiana.edu/~frick/plagiarism/ to reach the main page. Click on "How to Recognize Plagiarism" and work your way through the tutorial. At the end of your study (including some practice questions), you will take the Test. When you have passed the test, you will be able to print a certificate of completion. Turn in a printed copy of the certificate on the due date specified on the syllabus.

Internship Search and Cover Letter

Objectives: Internships are a great way to expand your scientific horizons, learn more about a particular field, gain experience and make contacts. Application deadlines will be coming up early in December and January, so now is the time to identify your dream internship!

Assignment: Using the resources that we will discuss in class, locate three interesting off-campus internships for which you are eligible. Submit a description of each program (**do not just "cut and paste" the description from the website or you will not gain full credit**). Choose your favorite, and write a sample cover letter expressing your specific interests in the program and describing your qualifications.

Resume

Objectives: Fitting your skills, education and ambitions on a flat, 8.5×11", black-and-white piece of paper is not easy. You will learn to apply effective techniques for creating a resume that will open doors for you.

Assignment: You will prepare a one-page "industry-style" resume. We will discuss the details in class. The first draft of your resume will be due in class one week after we discuss resume writing. This draft will be returned to you with feedback, and the revised draft will be due a few weeks later. Remember, a resume is always a work in progress... but it should not look that way!

Interview

Objectives: Being able to convey your talents, experience, interest and enthusiasm in an interview is a crucial career skill. Practice interviewing will help you (1) develop a structure for presenting yourself, (2) learn to think on your feet, and (3) work out any problems or anxieties before the actual event.

Assignment: You will select the professional position being pursued (*e.g.*, industry, graduate school, medical school, etc.) and sign up for individual 15-minute interviews. Your interview will be conducted just like a real interview, except that you will receive feedback afterward.

Journal Seminar Presentation
Objectives: In upper-level courses, graduate or professional school, and other research environments, you will doubtless participate in "journal club" type seminars. Sooner or later, you will be the seminar leader, and your job will be to read and understand a paper, present the research question, experimental approach, and results, and engage the group in guided discussion. We will practice this form of scientific interchange, and read some interesting papers in the process.

Assignment: A selection of papers will be provided by our biology faculty. You should choose a paper recommended by the faculty member with whom you will be writing your research proposal and potentially working on your senior research project. You will give a presentation and lead the discussion of the paper in class. For all journal seminars, everyone in the class is required to thoroughly read the paper(s) for discussion and will be required to prepare discussion questions.

Literature Search
Objectives: The ever-growing body of published scientific research is what allows scientists to learn from each other, build on previous work and avoid "re-inventing the wheel." As a professional scientist, you must be able to conduct an effective literature search, access published resources and give appropriate credit for intellectual property.

Assignment: Conduct a literature search on your chosen research topic, and put together a bibliography of references from peer-reviewed sources. This literature search should include at least 10 papers, 5 of which should be annotated. An annotated bibliography means that you should include at least three interesting aspects (or criticisms) of the papers that are NOT all part of the abstract of the paper; an example of this type of bibliography will be distributed in class.

Written Research Proposal
Objectives: Writing a research/teaching proposal will encourage you to further define and formulate your plans. Furthermore, it's good practice. No matter where your career goes, you'll be writing many more proposals (whether they're called grant applications, course proposals, or business plans).

Assignment: A complete research proposal follows the guidelines outlined below and in the handouts. There is a link on the Department of Biological Sciences website to the specific format required, which we will discuss in class. You will be handing in drafts of your research proposal to your faculty research advisor, BIO 350 instructor, and a fellow classmate. Your faculty research advisor will provide feedback on your entire research proposal. Your BIO 350 instructor will be checking to see that you have followed the correct proposal format. In class you will participate in a peer review workshop, where you will have the opportunity to critique a classmate's paper and have your proposal reviewed as well. You should respond to all of these sources of feedback as you prepare the final copy of your research proposal.

Graphics
Objectives: Clearly and efficiently communicating data using figures is important in presentations and publications. You will learn to use the available technology to create graphics that convey your results.

Assignment: You will be provided with sample data in numerical format. Choose the best format to convey the data, and prepare publication-quality figures using graphics software. **Include figure legends that are**

properly placed if the graph format requires a legend. You will also receive a tutorial that explains some details of using Microsoft Excel to graph data, and will submit the exercises described in it.

Poster Evaluation and Editing
Objectives: You will become more familiar with the format and style used in scientific poster presentations. By considering positive and negative aspects of existing posters, and making changes to a practice poster, you will gain experience toward evaluating your own work.

Assignment: First, you will carefully examine the posters currently located in the hallways of the Science Center, Miller Building, and Oberkotter Center that were presented by students and faculty at meetings, and will note both positive and negative attributes. You will then propose and implement improvements to a sample poster that will be distributed in class.

Proposed Research Presentation
Objectives: Preparing your presentation will help you think about your proposed project. Your classmates will learn about what you are doing, and you will gain the benefit of their feedback. Finally, this will serve as practice for the type of brief presentations that are common at scientific meetings.

Assignment: Prepare and practice a ten-minute talk using PowerPoint visual aids. Provide background to put your project into context, explain your basic question, describe the research approach you will use, and discuss how you will interpret your results. Plan to answer audience questions, as well.

Policies

Please take some time to examine the due dates for assignments, which are listed in the table on page 3, and discuss any anticipated conflicts with the instructor well in advance. Unexcused late work will be penalized 5% per day (see Grades).

Honor Code

We fully support the Cedar Crest College Honor Code and the associated Community Standards for Academic Conduct. We adhere to its positions on Academic Misconduct, Academic Dishonesty or Plagiarism, Classroom Protocol, and Attendance. Students are responsible for reading the current versions of these documents in "A Student's Guide to Cedar Crest College."

Students with documented disabilities who may need academic accommodations should discuss these needs with their instructor during the first two weeks of class. Students with disabilities who wish to request accommodations should contact the Advising Center.

Final Exam

Though this course does not have an official scheduled final exam, we will retain a date during the final exam period to be used if our research presentations run over time or one of our class days becomes canceled due to inclement weather. Thus, you are reminded as stated by the Provost's office: "Your obligations for this course include attendance at the final exam, on the day and time scheduled by the Registrar's Office. You should not make travel arrangements until the final exam schedule is published; if you must make plans early, you should schedule your travel after the last final exam day." On the last day of our schedule classes we will let you know if we will be using the final exam time for this course – thus do not schedule travel plans to exclude the possibility of leaving that day.

In Preparation for Your Senior Year

Research / Teaching

One of the primary goals of this course is to help you prepare for a year of research or teaching in your time remaining at Cedar Crest. The following describes some of the different opportunities available to you and the sequence of events that will help you to meet this goal.

Sequence of Events

Step One: Study the information included on the Department of Biological Sciences web page http://www2.cedarcrest.edu/academic/bio/ and choose "Faculty and Staff" and also "Research", attend the presentations by professors, and talk with other students about their research.

Selection of Sponsor and Topic: As early as possible, and by the due date on the syllabus, select a professor with whom you would like to conduct your research/teaching. Set up an appointment with your prospective mentor to discuss your interests, skills and plans.

After you and the faculty member agree upon a proposed project, submit the research handout to your Biology 350 instructor with your name, faculty sponsor's name and signature, the type of project (laboratory research, library research, or teaching internship) and the topic of the proposed work. Begin work on your literature search.

One-page Summary of the Project: Submit a one-page summary of your proposed work to your Biology 350 instructor.

Draft of Research Proposal: With guidance from your faculty sponsor, prepare a preliminary research proposal and submit this draft to your sponsor for review. Proposal formats are included in the handout distributed in class and on the Department of Biological Sciences website. Bring two additional copies of this proposal to the class meeting on Scientific Writing for review by a peer and a format review by your Biology 350 instructor.

Proposed Research Presentation: You will be presenting your research/teaching idea in class. Work with your selected faculty sponsor to develop and practice your ten-minute presentation and visual aids.

Written Research Proposal: Incorporate final modifications into your proposal. Submit one copy of your final proposal to your research/teaching sponsor and one copy to your Biology 350 instructor by the date given in the syllabus. Your Biology 350 instructor must also receive copies of the drafts read by your faculty sponsor and by a peer.

As always, if you are at all confused about anything, do not hesitate to contact your Biology 350 instructor.