

Syllabus for Research and Society Capstone: UNST 421 – Summer 2012

Class Time & Location:

Mondays 11:45 PM – 13:45 PM, SB2 room B1-52

Coordinator:

Dr. Mitch Cruzan, 725-8391, Office Location: SB1 404, cruzan@pdx.edu

Goals:

- Community service with an emphasis on the sciences and your research interests
- Learning to communicate scientific material in various media to professional and lay audiences
- Higher-level thinking about scientific processes & ethics—synthesizing knowledge
- Preparation to complete undergrad work and enter grad school and the workforce

Grading:

Discussion Participation: 20%

Presentation on your activity: 20%

Journal: 30%

Book report: 10%

Weekly assignments: 20%

Journal: Due at the end of your volunteer or research experience.

Research/volunteer activities must be documented through the use of journals. For **each separate** activity (i.e., each day/week you are engaged in science research or education) you must keep a written record:

- What did you do? Where and when did you do it? For whom were you volunteering?
- What were the objectives of the day's activity?
- What were the pros of the day's activity—did it serve its purpose?
- What would you do to improve the day's activity?
- What were your overall impressions of the day? Were there any surprises or any lessons learned?

Journal Assignment for week 1:

- Describe your interests and hopes for this class.
- Describe your previous education and mentoring experience/ research experience.
- Off the top of your head, give a one or two sentence statement of your post-graduate goals.

Journal Assignment for week 2: Identifying a Potential Post-graduate Programs

- Describe your interests and hopes for your post-graduate work.
- Choose a topic for postgraduate research and conduct a literature search on your area of interest using Web of Science.
- Make a list of at least five papers that you find interesting.
- Choose one of the five papers, or choose an author that appears on several of the papers (cannot be associated with PSU). Conduct a web search to identify the researcher:
 - Is this person currently a graduate student, post-doc, faculty member at a university, or do they work in a hospital, GO, or NGO?
 - If the person is not a PI at a university or other institution that has a graduate program, then choose a different researcher.
- Once you find a researcher who is a PI (i.e., they have a research lab and they mentor graduate students), then gather the following information:
 - Name of the institution.
 - Size of the graduate program.
 - Number of grad students and post-docs in the lab.

- See if you can determine whether they offer teaching or research assistantships. If they do, try to find out if they support MS and PhD students, or only PhD students.

Course Outlook

Students will learn the process of scientific inquiry and dissemination of scientific topics by:

- Research or mentoring activities – Conduct an independent research project in a natural science lab, or serve as a science education volunteer. Research labs/projects must be approved by the coordinators. Volunteer hours will be filled at AKA Science, Mad Science, OMSI, OR Zoo, or other.
- Developing and presenting a PowerPoint slide show on your experience.

Students will begin the transition to graduate school—even if you haven't previously considered grad school, we will be exploring the idea as well as the process by:

- Discussing how/when/why to apply
- Practicing the application process: Writing cover letters and essays, developing CVs and skills lists
- Exploring the requirements of grad school and the research process *after* acceptance: TAs, RAs, grant writing, science writing, publishing, research, scientific ethics, critique and analysis of previously published work, the scientific method, grant writing, etc.

Course Goals —Assignments and activities will revolve around meeting the following goals.

- Survey different teaching and mentoring techniques; prepare to volunteer
- Graduate school: Applying, getting in, etc.
- Graduate school: Life as a graduate student in the sciences—all the stuff you do once you're in
 - Find prospective graduate mentors
 - Write letters of introduction
 - Critique published journal articles
 - Explore topics in science ethics
- Volunteer/conduct research 50 hours in a science lab or science education venue

Expectations for Students of UNST 421

You will attend every class. If you have any circumstances which justify missing a class, you must contact us **BEFORE** the class you will miss. You may email the course coordinator. If you do not contact me **before** class, you will lose half of your participation grade (5% of the final class grade). If you miss a second class unexcused, you will lose all of your participation grade (10% of the final class grade). If you miss a third class unexcused, you will fail the course.

You will read all the assigned readings such that you will be able to discuss the topics when you attend class. For each assigned reading, write a brief summary and list 3 questions or discussion points.

1. You will complete all the assignments. Assignments must be typed. If you do not turn in ALL of the written assignments, you will not pass the course.
2. It is mandatory that you serve 50 volunteer (OMSI, OR Zoo, or related organizations) or independent research hours in a lab at PSU, OHSU, or other research institution (you must obtain instructor approval). Always be aware that our relationships with these organizations are, in large part, dependent on your actions—do not be late to scheduled meetings, classes, etc. Always arrive prepared and as informed as possible about your duties.
3. Read a book! Read any non-fiction book aimed at the general public. Choose one that attempts to explain science. You must have your book approved – in person or by email.

Examples of authors:

Carl Sagan

Lynn Margulis

Ken Miller

Sean B. Carroll

Class Meeting Schedule

Meet in SRTC B1-52 – Biology Conference Room

11:45 – 13:45

June 25 Monday Week 1

Journal assignment week 1 – Experience and post-graduate goals (be prepared to discuss).

Discussion topic – Be prepared to tell us about your capstone volunteer or research experience.

Two Reading Assignments – Be prepared to discuss

<http://www.everythingbio.com/gradschool/advice.php>

<http://www.pdx.edu/sites/www.pdx.edu/biology/files/THINKING%20OF%20APPLYING.pdf>

July 2 Monday Week 2

Journal assignment week 2 – Identify post-graduate programs that interest you.

Discussion topics and reading assignments tba.

July 9 Monday Week 3

Journal assignment week 3 – Letter of introduction (draft)

Candidate programs or graduate advisor list due (Final)

Discussion topics and reading assignments tba.

July 16 Monday Week 4

Journal assignment week 4 – Your CV (curriculum vitae) or resume (draft).

Letter of introduction due (Final)

Discussion topics and reading assignments tba.

July 23 Monday Week 5

Journal assignment week 5 – Letter of intent (draft).

CV/resume due (Final)

Discussion topics and reading assignments tba.

July 30 Monday Week 6

Final presentations