CHE 601: Chemistry Capstone Fall 2016 Syllabus
Class meets Wednesdays 3:10-4:10 in Hoyt 357

Professor: Dr. Patrick Lackey
Office: Hoyt
Email: lackeyp@westminster.edu
Phone: 724-946-7295
Office hours: Wednesday 4:10 – 5:10 (after class). My door is nearly always open and drop-ins are welcome.

Text: Chemical and Engineering News Weekly Trade Magazine (Requires ACS membership) and a variety of professional websites.

Course Description: Activities and discussions centered on the transition of students to chemical professionals. This experience includes journal readings, exploration of careers and graduate and professional schools, field trips, and creating professional documents. Additionally, each student creates a portfolio of chemical accomplishments and attends a weekly seminar.

Course Outcomes: (By the end of the course, students will be able to...)
✓ Evaluate career possibilities based on their strengths and interests
✓ Create professional documents including a resume and cover letter
✓ Conduct smart job/graduate school/professional school searches and perform well in job interviews
✓ Utilize online tools to create a professional network including Westminster alumni
✓ Network with scientists during professional meetings and site visits
✓ Practice the professional code of ethics expected for chemists
✓ Place their field of study in the context of the world around them

Attendance: Due to the emphasis on class discussion, attendance is required for all class meeting times.
- Two unexcused absences will result in lowering of the course grade by one letter grade.
- Four unexcused absences will result in a failing grade for the course.

Academic Integrity: The College’s Academic Integrity Policy (AIP) will be strongly enforced. Violations of the AIP include (but are not limited to!) cheating, misconduct, plagiarism, and providing false information. Academic dishonesty will not be tolerated. The first citation for academic dishonesty will result in a zero grade for the specific assignment. The second citation will result in a failing grade for the course. All citations for academic dishonesty will be reported to the Dean of the College, in accordance with college policy.

Grading System:

<table>
<thead>
<tr>
<th>Grade Scale (out of 100%)</th>
<th>Point Distribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 90-100%</td>
<td>Career Preparation</td>
</tr>
<tr>
<td>B+ 87-89%, B 83-86%, B- 80-82%</td>
<td>Portfolio</td>
</tr>
<tr>
<td>C+ 77-79%, C 73-76%, C- 70-72%</td>
<td>Seminar Presentation</td>
</tr>
<tr>
<td>D+ 67-69%, D 63-66%, D- 60-62%</td>
<td>C&amp;E News Discussion</td>
</tr>
<tr>
<td>F &lt; 60%</td>
<td>Outside talk reflections</td>
</tr>
<tr>
<td></td>
<td>Peer Seminar Evaluations</td>
</tr>
</tbody>
</table>
Other important dates:
- Monthly Spectroscopy Society of Pittsburgh (SSP) meetings at Duquesne University-TBP
- Monthly Society of Analytical Chemists of Pittsburgh (SACP) meetings at Duquesne University-TBP
- SciMathTech Interview Day – Register by Oct. 3 – November 10, 2017 9:00am - 3:00pm IUP Monroeville Graduate and Professional Center
- October 11th, 2017: WestPACS Job and Internship Fair at Monroeville Convention Center 10:00 a.m.-3:00 p.m.--Career Center can provide transportation. To register go to www.westpacs.org

CHE 601 Course Schedule Fall 2017

<table>
<thead>
<tr>
<th>Date</th>
<th>In-class plan</th>
<th>Assignment due next week</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/30</td>
<td>Semester planning/career planning&lt;br&gt;&lt;br&gt;Myers-Briggs Type Indicator Personality Inventory</td>
<td>Reflection: What do you need to do to prepare to find a job?</td>
</tr>
<tr>
<td>9/6</td>
<td>What kind of career is right for me?&lt;br&gt;C&amp;E News: Jarret and Stefen</td>
<td>Reflection</td>
</tr>
<tr>
<td>9/13</td>
<td>What kinds of chemistry/biochem careers are there? Job searching&lt;br&gt;C&amp;E News: Madison and Christina</td>
<td>Listings of 5 potential jobs and/or graduate schools</td>
</tr>
<tr>
<td>9/20</td>
<td>How do I present myself on paper? Resume and cover letter&lt;br&gt;C&amp;E News: Nate and Dan</td>
<td>Bring 2 hard copies of a resume and cover letter along with job ad</td>
</tr>
<tr>
<td>9/27</td>
<td>Visit to career center and working session for resumes&lt;br&gt;C&amp;E News: Lindsay and Jen</td>
<td>Final version of resume and cover letter with job ad</td>
</tr>
<tr>
<td>10/4</td>
<td>How should I present myself in an interview? Do’s and Don’t’s&lt;br&gt;C&amp;E News: Tristan and Jarret</td>
<td>Mock interview with Career Center due by 10/25</td>
</tr>
<tr>
<td>10/11</td>
<td>Writing the personal statement&lt;br&gt;C&amp;E News: Stefen and Christina</td>
<td>Personal statement due</td>
</tr>
<tr>
<td>10/18</td>
<td>Why should I network? Online tools and face-to-face&lt;br&gt;C&amp;E News: Madison and Nate</td>
<td>ACS and LinkedIn pages</td>
</tr>
<tr>
<td>10/25</td>
<td>How have I grown as a scientist? Discussion of portfolio&lt;br&gt;C&amp;E News: Dan and Lindsay</td>
<td>Work on portfolio is ongoing</td>
</tr>
<tr>
<td>11/1</td>
<td>Field trip: TBA</td>
<td></td>
</tr>
<tr>
<td>11/8</td>
<td>What are the benefits of Westminster’s Alumni Assn.? Let’s visit&lt;br&gt;C&amp;E News: Tristan and Jen</td>
<td>Phone or email conversation with alumni (due within 2 weeks)</td>
</tr>
<tr>
<td>11/15</td>
<td>TBA</td>
<td>Research upcoming field trip</td>
</tr>
<tr>
<td>11/22</td>
<td>No Class – Thanksgiving Break</td>
<td></td>
</tr>
<tr>
<td>11/29</td>
<td>Field trip: TBA</td>
<td>Portfolio due</td>
</tr>
<tr>
<td>12/6</td>
<td>Discussion of scientific ethics</td>
<td></td>
</tr>
</tbody>
</table>
Reminder of senior research (CHE 600) due dates: All materials to be turned in to your research advisor
Draft of introduction/background Monday, September 22 @ 5:00 pm
Draft of experimental design/procedure Monday, October 20 @ 5:00 pm
Draft of results section Monday, November 10 @ 5:00 pm
Draft of discussion and conclusions Monday, December 1 @ 5:00 pm
FINAL PAPER Monday, December 13 @ 5:00 pm

Career preparation assignments: (40% of course grade)

Career interest and job searching (3%)
The career center will administer the Myers-Briggs Personality Inventory test that categorizes your personality and strengths for specific types of careers. Also, many different kinds of careers will be presented during the initial class meetings. A short career interest statement as well as job postings will be turned in during class and discussed.

Resume (10%)
Your resume is a polished document that shows how your skills fit with a specific job description. The resume generally has introductory information about you, a clear objective, career highlights, education and work experience, and supporting information. The ACS website has tremendously useful information about writing a resume.
http://www.acs.org/content/acs/en/careers/jobsearch/resume.html
Each student will write a resume using tips from class and various reputable websites. Your resume will be peer reviewed during class and then a final version will be turned in online.

Cover letter (5%)
A cover letter should accompany any job application and should be an introduction to yourself and your fit for the advertised position. The letter should be no longer than one page in length and should provide information about how you found out about the job, what specific job you are interested in, highlights about yourself and specifically why you qualify for the job. Using words found in the job advertisement works to show how well you fit their need. Check out this website for more advice.
http://www.career.vt.edu/jobsearchguide/coverlettersamples.html
A cover letter in response to a real job advertisement will be required. It should be very professionally presented and will be graded on content and appearance.

Mock interview (5%)
Coordinating with the career center, you will take place in a mock interview for a selected job description of your choice. This interview should be treated as a completely real interview for an actual job at a company where you are truly interested in working. For the interview, you should dress professionally (suit if you own one) and bring copies of your resume and cover letter. You will be graded on how well prepared you are to answer questions about your experience and about the company and position for which you are interviewing.

Personal statement (5%)
The personal statement is generally included in an application to a professional or graduate school. This document discusses your abilities and interests within your professional field. It generally includes
personal information about your life, but only that pertaining to your chosen field. It is used in admission offices to judge your fit for a certain program, so could include reasons that you connect with a given school/program. See Purdue’s website for excellent advice on writing the personal statement. [http://owl.english.purdue.edu/owl/resource/642/01/](http://owl.english.purdue.edu/owl/resource/642/01/)

**Networking with online profiles (6%)**

Create both LinkedIn and ACS Network pages to join these two professional networking groups. Your pages should be complete with your research and job experiences and a professional picture. Once your profile is complete extend an invitation to Dr. Lackey so he can give you credit for this assignment.

**Networking with Westminster alumni (3%)**

The class will visit the Wiley alumni house and become familiar with the alumni relations staff during one class meeting. A list of alumni with a variety of careers will be provided and each student will network via phone or email with an alumnus that has an intriguing or shared career interest. A report of the interaction will be required.

**Networking through field trips or professional events (3%)**

While this is the digital age, it is still very important (and often hardest) to make face-to-face network connections. This assignment requires you to make a personal connection with one of the professionals that you meet while on a field trip or at a professional event. Several events are listed on the syllabus. Keep up-to-date with current events by visiting websites for the ACS local section (Penn-Ohio Border and Pittsburgh), the Spectroscopy Society of Pittsburgh, Youngstown State University chemistry seminar page, and Slippery Rock University chemistry seminar webpage. A report detailing your interaction with the chemical professional is required.

**Portfolio: (10% of course grade)**

As part of the completion of this chapter of your academic career, you will put together a portfolio that reflects upon your progress as an undergraduate of Westminster College. Items to include in the portfolio are exams, lab reports, writing samples and a self-reflection. More details about this portfolio will be discussed in class.
**Chemical &Engineering News Assignments: (15% of course grade)**

**Purpose**
The purpose for reading the weekly American Chemical Society trade magazine Chemical & Engineering news on a weekly basis is to stay well-informed of current events and expand your knowledge of the world of chemistry. Additionally, the articles will be discussed in the classroom and in online forums to promote intellectual discourse on timely topics in chemistry.

**Which issue?**
On C&E news discussion weeks (see syllabus), the class will discuss the previous week’s issue of the news magazine. (For example, on Wednesday Sept 4th, the class will discuss the C&E news published Monday, August 26th.)

**C&E News online forums (10%)**
The D2L forum will be utilized to enhance our class discussion about the weekly C&E News. Students will be required to post about the cover article and about other articles in the issue. The forums page on D2L will be used for this discussion. These are graded based on thoughtfulness, originality, and demonstration of reading comprehension. (2 = good, 1 = average, 0 = nothing posted)

**Cover article**
- By the *Monday prior* to the class discussion, each student should make an initial post that poses a question about the cover article. This question should demonstrate an understanding of the article, but should seek to expand the readers’ comprehension or context of the article.
- The class discussion will be led by assigned students and should be based on addressing questions about the cover article and providing more in-depth study of the main article.

**Other articles**
- By the *Monday prior* to the class discussion, each student must make an initial post about another article in the issue. These initial posts should be questions that provoke discussion, seek help in understanding the article, or are otherwise relevant to the topic.
- By the class discussion day, each student must make a reply to another student’s initial posting.

**Leading in-class discussion (5%)**
Students will work in groups to lead the discussion of one issue of C&E news. The majority of the discussion should be based on the cover article and should address the questions posed by the class on the forum. Background information/research extending beyond the C&E news article should also be evident by all discussion leaders. If time allows, discussion can extend into the rest of the articles.
Seminar (30%):

Refer to the seminar schedule for your assigned presentation date. Regardless of the seminar section that you attend, you will turn in your assignments electronically on the CHE 601 webpage (10 pts for each of 3 papers, 100 pts for seminar presentation).

Attendance and Participation:

All capstone students are required to participate in every seminar unless the instructor approves your absence. Excused absences must be made up by attending extra outside scientific talks and submitting a reflection paper. Each unexcused absence will result in lowering the seminar grade by one letter. Active participation is indicated by your ability to formulate intelligent, pertinent questions about the presentation topic. Over the course of the semester, you should strive to ask a few well-thought out questions of the seminar speakers.

Outside talks and reflection papers:

Students are required to attend two external scientific talks/events that are approved by your CHE 601 instructor. Potential outside talks include invited on-campus speakers (non-seminar), local ACS section meetings, and scientific seminars at other institutions or professional organization meetings. One of your two external talks must be off campus. A reflection paper must be submitted within one week of attending each outside talk. At least one reflection paper is due by fall break. The second reflection paper is due by 5:00 pm on the last day of classes. You are to turn in your reflection papers electronically on the coursework webpage of CHE 601.

Peer seminar evaluation:

To help improve the quality of seminars and to develop constructive criticism skills, students will be paired to evaluate a practice run of another student’s seminar. You will use a grading rubric to help you critically analyze their seminar presentation. This rubric should be discussed with the speaker to help them improve their seminar. A peer seminar evaluation paper will be submitted to the CHE 601 coursework webpage within one week of the peer’s seminar. The paper should include an analysis of their practice talk, your suggestions for improvement and a reflection on the overall evaluation process. A peer seminar evaluation guide is posted as a handout on the advanced lab and capstone course webpages.

Seminar topic:

The in-depth article presentation should relate to your senior research project and will be mentored by your research advisor. The purpose of this talk is to dig deep into a primary research article and to think critically about the results. This should not just be a recap of the results of the paper, but must include your own critical analysis about their use of methods, their analysis of the results and the quality of the research. You should include several more peer-reviewed articles to support your article discussion.