

## BIOL/CHEM 4700 Research Methods for Secondary Science Instruction

### COURSE SYLLABUS Fall 2015

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*UNT endeavors to offer you a high-quality education and to provide a supportive environment to help you learn and grow. As faculty members, we are committed to helping you be successful as a student. Here's how to succeed at UNT:*

- *Show up*
- *Find support*
- *Take control*
- *Be prepared*
- *Get involved*
- *Be persistent*

#### Course Description:

In this course, students are provided opportunities and tools to solve scientific problems in a laboratory setting, are made aware of how scientists communicate with each other through peer-reviewed scientific literature, and gain understanding of how scientists develop new knowledge and insights that are shared with the scientific community and, ultimately, their future students. This course also provides content knowledge and experiences concerning all aspects of managing the high school science laboratory. Discussion of techniques used to successfully accomplish scientific inquiry in the laboratory or in the field, experimental design & set-up, effective use of current technology, proper data analysis, laboratory & field safety, and high school laboratory design & management are included in the course.

#### Prerequisites:

Completion of freshman and sophomore science courses required for teacher certification and consent of department. EDSE 3500 and EDSE 4000 are *highly* recommended.

#### Instructional Emphasis

***Research Methods for Secondary Science Instruction*** is a two-pronged course that is primarily laboratory-based. This course is steeped in inquiry through research and practical teaching techniques that require the student to take on three different roles throughout the course: scientist, science teacher, and science student. Technology that is used in laboratory situations, both in research and in secondary schools, is used throughout the course. Safety is of utmost importance to a scientist and a science teacher, therefore, much time is spent learning safe practices for inside and outside the science laboratory.

Research Methods students design experiments to answer scientific questions and to reduce systematic and random errors. They incorporate relevant statistics to interpret experimental results and deal with sampling errors. They present their scientific research orally and in writing. Writing is a significant component of the course, and the written reports students produce are evaluated as examples of scientific writing.

Research Methods students also develop relevant laboratory management skills, technology expertise, and classroom management techniques that are needed in the secondary science classroom. The emphasis is on inquiry techniques and science process skills that are used to develop effective habits of mind from a scientific and consumer perspective and that are used to develop 21<sup>st</sup> century skills in secondary students. State standards are also emphasized, particularly the TEKS and CCRS.

The combination of *Research Methods for Secondary Science Instruction* and *Perspectives on Mathematics and Science* provides prospective science and teachers with an in-depth understanding of how the scientific enterprise works. Students embed their understanding of the nature of science and mathematics into their Project-Based Instruction curriculum unit.

### Core Components

- The course is taught by an instructional team with a broad mix of scientific expertise and instructional expertise.
- The course is primarily a laboratory course where students develop and practice skills that are fundamental to the scientific enterprise.
- The course is organized around one independent inquiry that TNT students design and carry out.
- The course requires a substantial amount of writing. Components of the inquiry will be individually evaluated based on scientific writing standards and feedback provided before the entire written inquiry report is submitted at the end of the semester.
- The course emphasizes the development of skills that are directly applicable in teaching secondary science (e.g. use of equipment, preparation of lab materials, safety issues, use of technology)

### Course Objectives, State and National Standards:

<b>OBJECTIVES:</b> <i>Upon completion of this course, students will be able to...</i>	<b>Texas PPR EC-12 Standards:</b>	<b>NSTA Standards for Science Teacher Preparation</b>
Pose scientific questions and create experiments to answer these questions	9D	1d
Find, read, and critique research articles in a field of scientific study	9C	
Design experiments to reduce systematic and random errors and provide for proper data analysis	9D	1d, 1e
Implement current technology using probes and computers to gather and analyze data	3E, 9A, 9B, 9F	5d
Practice laboratory safety, understand how and why chemical storage in the secondary environments works, state the purpose of and correctly use safety tools in a laboratory setting.	5F, 9B, 13A, 13B	5f, 9b, 9c, 9d
Explain why safety is crucial in all laboratory investigation settings. Explain the legal and ethical responsibilities of science teachers.	5F, 5G, 9B, 13A, 13B	9a
Use statistics to interpret results of experiments.	9D	
Design a safe, functional, and efficient science laboratory.	5F, 9B, 13A, 13B	9a-d
Write and review scientific papers.	3B, 3G, 8D, 9G	5e, 8a
Give both oral and poster presentations of scientific research.	3D, 9E	

### Course Materials:

Required: Collins, J.W. (2010). *Texas Safety Standards: Kindergarten through Grade 12, A Guide to Laws, Rules, Regulations, and Safety Procedures for Classroom, Laboratory, and Field Investigations*, 4th Ed. Charles. A Dana Center: Austin, TX.

Optional: Marder, M.P. (2011). *Research Methods for Science*, Cambridge University Press: New York. ISBN 978-0-521-14584-8.

### Attendance

Attendance and punctuality are expected in this course. Daily roll will be taken and you will be responsible for signing the attendance sheet each class period. Tardies and absences will count toward final grade reduction. **Three tardies = 1 absence; 3 absences = 1 letter grade lowered; 4 absences = 2 letter grades lowered; 5 absences = 3 letter grades lowered; 6 or more absences = failure in the class.**

**Grading:**

Item	Due Date	Points
Three topics & questions for research	August 29	3
Research proposal	September 1	3
Experimental design/Methodology	September 8	3
Flinn Safety Certification	September 20	10
Reading Assignments (5)	Throughout semester – see below for dates	12 @ 2 pts each = 24 pts
Statistics Assignments (4)	Throughout semester – see below for dates	4 @ 2 pts each = 8 pts
Canned Tech Lab Write-Up & Teach	October 6	20
Literature review	October 10	3
Canned Tech Lab Reflection and Discussion Board Feedback	October 20	2
Presentation of initial experimental results	October 21	5
Results & Data analysis	November 7	3
Demonstration Write-Up & Show	November 10	10
Demonstration Reflection	November 12	2
Conclusions	November 14	3
Rough draft of Research Paper	November 23	5
Poster presentation	December 2	5
Final Research paper	December 9	20
Final presentation	December 9	5
TOTAL POINTS		134

*Things that can seriously impact grade and are often over-looked: absences, class behavior, inappropriate use of technology, tardiness, poor participation, assignment deadlines, neglecting weekly assignments.*

## Course Requirements and Expectations

- Some course topics and activities will be covered only in class. You must be present to receive credit for these activities.
- Drafts of all writing assignments (components of your final research paper) will be graded and feedback provided based on the Research Paper Rubric. All draft write-ups will receive extensive notation from your instructor. Final drafts will have fewer (if any) comments.
- The research project must be closely related to your major.
- Development of instructional materials in the course is expected and such materials will be shared with classmates in a spirit of collegiality.
- Research Methods is a substantial writing course. Therefore, your writing assignments will be evaluated both on CONTENT and QUALITY of written expression. Conventional use of English language and conventions of scientific writing will be followed. There are no formal examinations. It is typical for your final inquiry paper to run about 15 to 20 tightly edited pages.

## Assignments

- All assignments are submitted on BlackBoard Learn.
- All assignments are due by midnight of the day the assignment is due. Midnight is defined as being between 11:59 p.m. and 12:00 a.m.
- **No late assignments will be accepted.**
- If you have to miss an in-class assignment due to unforeseen circumstances, let your instructor know ahead of time (Dr. Sherman for chemistry majors and Dr. Thompson for biology majors). If you let the instructor know in advance, you will be allowed to make the assignment up. Failure to attend and communicate will result in an automatic zero for the assignment.

## Academic Integrity

Students are expected to become familiar with UNT's policy on Student Standards of Academic Integrity: [http://policy.unt.edu/sites/default/files/untpolicy/pdf/7-Student\\_Affairs-Academic\\_Integrity.pdf](http://policy.unt.edu/sites/default/files/untpolicy/pdf/7-Student_Affairs-Academic_Integrity.pdf). Academic dishonesty, in the form of plagiarism, cheating, or fabrication, will not be tolerated in this class. Any act of academic dishonesty will be reported, and a penalty determined, which may be probation, suspension, or expulsion from the university.

## Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at <http://deanofstudents.unt.edu>. Persistent misbehavior of any kind will result in serious consideration for removal from the TNT program by a committee composed of the instructor, a director of the program, the program advisor, and another TNT faculty member.

## Course Safety Statement

Students in BIOL/CHEM/PHYS 4700 are required to use proper safety procedures and guidelines and wear proper attire for work in a lab setting. While working in laboratory sessions, students are expected and required to identify and use property safety guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment and tools, handling chemical solutions and hot and cold products. Failure to follow safety protocols is considered unacceptable student behavior, and appropriate consequences may be applied including verbal warnings, removal from lab, and/or referral to Dean of Students. Persistent refusal to follow safety protocols could result in removal from the TNT program as described above.

Students should be aware that the University of North Texas is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider obtaining Student Health Insurance for this insurance program. Brochures for this insurance are available in the UNT Health and Wellness Center on campus. Students who are injured during class activities may seek medical attention at the UNT Health and

Wellness Center at rates that are reduced compared to other medical facilities. If you have an insurance plan other than Student Health Insurance at UNT, please be sure that your plan covers treatment at this facility. If you choose not to go to the UNT Health and Wellness Center, you may be transported to an emergency room at a local hospital. You are responsible for expenses incurred there.

**Americans with Disabilities Act:**

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information, see the Office of Disability Accommodation website at <http://disability.unt.edu>. You may also contact them by phone at (940) 565-4323.

**\*SETE (Student Evaluation of Teaching Effectiveness)**

Student feedback is important and an essential part of participation of this course. The Student Evaluation of Teaching (SETE) is a requirement for all organized classes at UNT. This short survey will be made available at the end of the semester to provide you with an opportunity to evaluate how this course is taught.

***This course syllabus is intended to be a guide and may be amended at any time.***

**Course Overview (subject to change – Watch BlackBoard for announcements.)**

<b>Class</b>	<b>Overview</b>	<b>Assignments</b> <i>(All assignments are due by 11:59 p.m. on the date listed unless otherwise noted.)</i>
<b>Week 1</b> <b>August 24</b>  <b>Introduction, Safety, and Research</b>	<ul style="list-style-type: none"> <li>• Intro to course, safety, Flinn online safety course,</li> <li>• Introduction to scientific research and choosing topics for research</li> </ul>	<b>1) Reading</b> Sherman Chapters 1 (What is Science?) & 2 (How Do We Do Science?) – due 8/25 <b>2) Research Project</b> – Identify 3 potential topics for research and write questions for each – due 8/29/15. <b>3) Flinn Safety Course-</b> Go to <a href="http://labsafety.flinnsci.com/CertificateCourseSelection.aspx?CourseCode=HS">http://labsafety.flinnsci.com/CertificateCourseSelection.aspx?CourseCode=HS</a> . Create a login and get started on the safety course. Due 9/20/15.
<b>August 26</b>  <b>Research Design</b>	<ul style="list-style-type: none"> <li>• Seilman’s research</li> <li>• Experimental design and writing research proposals</li> </ul>	<b>1) Reading</b> Texas Safety Standards: Ch 1, 4, 7 – due 8/30/15. <b>2) Reading</b> Sherman Ch 3 (Who Else Has Studied This?) – due 8/30 <b>3) Flinn Safety Course</b> – due 9/20/15. (Be sure that you are logged into the course as you work!)
<b>Week 2</b> <b>August 31</b>  <b>The Literature Search</b>	<ul style="list-style-type: none"> <li>• “Library Day” – Erin O’Toole, Science Librarian for UNT provides instruction about online databases, scientific journals, and other resources</li> </ul>	<b>1) Reading</b> Texas Safety Standards Ch 2 & 3 – due 9/6/15 <b>2) Flinn Safety Certification Course</b> – due 9/20/15. (Be sure that you are logged in to the course!) <b>3) Research Project</b> – Research Proposal due 9/1/15. Bring a hard copy to consultation session.
<b>September 2</b>  <b>Proposal Consultations</b>	<ul style="list-style-type: none"> <li>• Proposal consultation day – work with instructor on improving your research proposal</li> <li>• Put a list of materials together for research project including quantities!</li> <li>• Order materials for research project</li> </ul>	<b>1) Reading</b> Sherman Ch 4 (How Can We Prove Our Work?) – due 9/5 <b>2) Research Project</b> – Write up experimental design, due 9/8/15. <b>3) Materials list due in class on 9/9/15.</b> Bring hard copy to consultation session.
<b>Week 3</b> <b>September 9</b>  <b>Proposal Presentations &amp; Experimental Rigor</b>	<ul style="list-style-type: none"> <li>• Proposal Presentations</li> <li>• Experimental Rigor – Proving our Work</li> <li>• Experimental Design consultation</li> <li>• Order materials for research project</li> </ul>	<b>1) Reading</b> Texas Safety Standards Ch 5 & 6- due 9/13/15. <b>2) Reading</b> Lord (1999) article – due 9/13/15 <b>3) Flinn Safety Certification Course</b> - finish all units and their assessments. Submit copy of certificate(s) to Assignment Portal by 9/20/15.

<b>Week 4</b> <b>September 14</b>  <b>College &amp; Career Readiness</b>	<ul style="list-style-type: none"> <li>College &amp; Career Readiness Standards workshop</li> </ul>	<b>1)</b> Reading Sherman Ch 5 (What Does My Data Say?) – due 9/15 <b>2) Flinn Safety Certification Course</b> -- finish all units and their assessments. Submit copy of certificate(s) to Assignment Portal by 9/20/15.
<b>September 16</b>  <b>Statistics 1 Data Analysis</b>	<ul style="list-style-type: none"> <li>Statistics: Sample size, measures of central tendency, using Excel</li> <li>Set up experiment (if time available)</li> </ul>	<b>1) Flinn Safety Certification Course</b> -- finish all units and their assessments. Submit copy of certificate(s) to Assignment Portal by 9/20/15. <b>2) Statistics HW 1</b> – due 9/20
<b>Week 5</b> <b>September 21</b>  <b>Experiment – Round 1</b>	<ul style="list-style-type: none"> <li>Discuss Stats HW 1</li> <li>Set up and run experiments</li> <li>Work on literature review if experiment is being conducted at home</li> </ul>	<b>1) Research Project</b> – experimentation and adjustments to experiment/data analysis as needed. Take notes throughout the experiment!
<b>September 23</b>  <b>Experiment – Round 1 &amp; Statistics 2</b>	<ul style="list-style-type: none"> <li>Stats 2: Graphical Analysis</li> <li>Experiments – Round 1</li> <li>Work on literature review if experiment is being conducted at home</li> <li>Progress check</li> </ul>	<b>1) Research Project</b> – experimentation and adjustments to experiment/data analysis as needed. Take notes throughout the experiment! <b>2) Statistics HW 2</b> – due 9/27/15.
<b>Week 6</b> <b>September 28</b>  <b>Experiment Round 1</b>	<ul style="list-style-type: none"> <li>Discuss Stats HW 2</li> <li>Run experiments</li> <li>Work on literature review if experiment being conducted at home.</li> <li>Progress Check</li> <li>Sign up for Canned-Lab Project (presentations on Oct. 7-19)</li> </ul>	<b>1) Research Project</b> – Literature Review due 10/10/15. Bring hard copy to consultation session <b>2) Research Project</b> – experimentation and adjustments to experiment/data analysis as needed. Take notes throughout the experiment! <b>3) Canned-Lab write-ups</b> due 10/6/15.
<b>September 30</b>  <b>Experiment Round 1 &amp; Canned Labs</b>	<ul style="list-style-type: none"> <li>Finish experiments (if needed)</li> <li>Canned-Lab planning and preparation</li> </ul>	<b>1) Reading</b> – Sherman Ch 6 (What Conclusions Can Be Drawn?) – due 10/4 <b>2) Research Project</b> – experimentation and adjustments to experiment/data analysis as needed. Take notes throughout the experiment! <b>2) Canned-Lab write-ups</b> due 10/6/15. <b>3) Research Project literature review</b> due 10/10/15.
<b>Week 7</b> <b>October 5</b>  <b>Canned Lab Prep &amp; Statistics 3</b>	<ul style="list-style-type: none"> <li>Stats 3: Central Limit Theorem &amp; introduction to hypothesis testing: confidence intervals</li> <li>Canned-Lab preparation and practice</li> </ul>	<b>1) Research Project</b> – Literature review due 10/10. Presentation of initial results on 10/21/15. Be ready to present and answer questions! <b>2) Canned-Lab write-ups</b> due 10/6/15. <b>3) Statistics HW 3</b> – due 10/11/15.
<b>October 7</b>  <b>Canned Labs</b>	<ul style="list-style-type: none"> <li>Discuss Stats HW 3</li> <li>Canned lab presentations</li> </ul>	<b>1) Canned Lab – reflection</b> due 10/20/15. <b>2) Research Project</b> – Literature review due 10/10. Presentation of initial results on 10/21/15. Be ready to present and answer questions!

<p><b>Week 8</b> <b>October 12</b></p> <p><b>Canned Labs &amp; Literature Review</b></p>	<ul style="list-style-type: none"> <li>• Canned lab presentations</li> <li>• Literature Review Consultations</li> </ul>	<p><b>1) Canned Lab</b> – reflection due 10/20/15</p> <p><b>3) Research Project-</b> Be ready to share research results to date in class on Monday, 10/21.</p>
<p><b>October 14</b></p> <p><b>Canned Labs</b></p>	<ul style="list-style-type: none"> <li>• Canned lab presentations</li> <li>• Research Experiment – consultation on revisions and order materials (if needed)</li> </ul>	<p><b>1) Canned Lab</b> – reflection due 10/20/15.</p> <p><b>2) Research Project-</b> Be ready to share research results to date in class on Monday, 10/21.</p>
<p><b>Week 9</b> <b>October 19</b></p> <p><b>Statistics 4 &amp; Canned Labs</b></p>	<ul style="list-style-type: none"> <li>• Stats 4: t-tests and hypothesis interpretations</li> <li>• Canned lab presentations</li> <li>• Order more materials (if needed)</li> </ul>	<p><b>1) Canned Lab</b> – reflection due 10/20/15.</p> <p><b>2) Statistics HW 4</b> – due 10/25/15</p> <p><b>3) Research Project-</b> Be ready to share research results to date in class on Monday, 10/21.</p>
<p><b>October 21</b></p> <p><b>Research Project Presentations, Consultations, Statistics 5</b></p>	<ul style="list-style-type: none"> <li>• Canned lab debriefing</li> <li>• Research project presentations of initial results</li> <li>• Stats 5: Chi-Squared testing</li> </ul>	<p><b>1) Stats HW 4</b> – due 10/25/15</p>
<p><b>Week 10</b> <b>October 26</b></p> <p><b>Research Project – Round 2</b></p>	<ul style="list-style-type: none"> <li>• Discuss Stats HW 4</li> <li>• Round 2 of experimentation</li> <li>• Work on writing if project is done at home</li> </ul>	<p><b>1) Reading</b> – either: Passmore, et al (2013) for Biology Mayer, Damelin, Krajcik (2013) for Chemistry due 10/25/15.</p>
<p><b>October 28</b></p> <p><b>Research Project - Round 2</b></p>	<ul style="list-style-type: none"> <li>• Using Models and Manipulatives</li> <li>• Round 2 of experimentation</li> <li>• Work on writing if project is done at home</li> <li>• Progress Report</li> </ul>	<p><b>1) Reading</b> “<i>Fifteen Simple Discrepant Events That Teach Science Principles and Concepts</i>” E.L.Wright – due 11/3/15</p> <p><b>2) Research Project</b> – data analysis from experiment – due 11/7/15. Bring hard copy to consultation session.</p>
<p><b>Week 11</b> <b>November 2</b></p> <p><b>Research Project - Round 2</b></p>	<ul style="list-style-type: none"> <li>• Round 2 of experimentation</li> <li>• Work on writing/data analysis if project is done at home</li> <li>• Progress Report</li> </ul>	<p><b>1) Reading</b> “<i>Fifteen Simple Discrepant Events That Teach Science Principles and Concepts</i>” E.L.Wright – due 11/3/15</p> <p><b>2) Research Project</b> – data analysis from experiment – due 11/7/15. Bring hard copy to consultation session.</p>
<p><b>November 4</b></p> <p><b>Demonstration Preparation</b></p>	<ul style="list-style-type: none"> <li>• Instructor demo show,</li> <li>• Plan demonstration, re-run experiments (if needed)</li> </ul>	<p><b>1) Demo Presentation Write-up</b> due 11/10/15.</p> <p><b>2) Research Project</b> – data analysis from experiment – due 11/7/15. Bring hard copy to consultation session.</p>
<p><b>Week 12</b> <b>November 9</b></p> <p><b>Research Project</b></p>	<ul style="list-style-type: none"> <li>• Data Analysis consultation time</li> <li>• Re-run experiments (as needed)</li> <li>• Write conclusions</li> </ul>	<p><b>1) Demo Presentation Write-up</b> due 11/10/15.</p> <p><b>2) Read Sherman Ch 7</b> (How Do I Organize My Thoughts for Communication?) – due 11/11</p> <p><b>3) Research Project</b> – Conclusions – due 11/14/15. Bring hard copy to consultation session.</p>

<b>November 11</b>  <b>Writing the Paper</b> <b>Student Demos</b>	<ul style="list-style-type: none"> <li>Putting the research paper together.</li> <li>Student demonstrations</li> </ul>	<b>1) Demo Presentation Reflection</b> due 11/12/15 <b>2) Research Project</b> – Conclusions – due 11/14/15. Bring hard copy to consultation session.
<b>Week 13</b> <b>November 16</b>  <b>Research Project conclusion</b>	<ul style="list-style-type: none"> <li>Conclusions consultation time</li> <li>Clean up lab</li> </ul>	<b>1) Research Project</b> – Rough draft of research paper due 11/23. Bring hard copy to class on 11/25 for consultation and on 11/30 for peer review. <b>2) Reading</b> Sherman Ch 8 (How Do I Share My Work With Others?) – due 11/17 <b>All borrowed materials must be returned by class time on 11/30/15.</b>
<b>November 18</b>  <b>Communication of Research</b>	<ul style="list-style-type: none"> <li>Communication of the Research</li> <li>Write rough draft</li> </ul>	<b>1) Research Project</b> – Rough draft of research paper due 11/23. Bring hard copy to class on 11/25 for consultation and on 11/30 for peer review. <b>All borrowed materials must be returned by class time on 11/30/15.</b>
<b>Week 14</b> <b>November 23</b>  <b>Posters</b>	<ul style="list-style-type: none"> <li>Poster Cruising</li> <li>What goes into a poster?</li> <li>Design poster</li> </ul>	<b>1) Research Project</b> – Rough draft of research paper due 11/23. Bring hard copy to class on 11/25 for consultation and on 11/30 for peer review. <b>2) Research Project</b> –Poster due 12/2/15 <b>All borrowed materials must be returned by class time on 11/30/15.</b>
<b>November 25</b>  <b>Rough Draft Consultations</b>	<ul style="list-style-type: none"> <li>Clean up lab – What do we need for next semester?</li> <li>Rough Draft Consultation</li> <li>Work on revisions</li> </ul>	<b>1) Research Project</b> – Bring hard copy of rough draft to class on 11/30 for peer review. Making revisions before 11/30 are acceptable and encouraged. Final draft of paper due 12/3/15 <b>2) Research Project</b> –Poster due 12/2/15 <b>All borrowed materials must be returned by class time on 11/30/15.</b>
<b>Week 15</b> <b>November 30</b>  <b>Peer Review</b>	<ul style="list-style-type: none"> <li>Peer review of research papers</li> </ul>	<b>1) Research Project</b> – Final draft of paper due 12/9/15 <b>2) Research Project</b> –Poster due 12/2/15
<b>December 2</b>  <b>Poster Session</b>	<ul style="list-style-type: none"> <li><b>Poster session today!</b> Be ready to explain your experiment to instructors from chemistry, biology and physics departments.</li> <li>Course evaluations</li> </ul>	<b>1) Research Project</b> – Final draft of paper due 12/9/15 <b>2) Research Project</b> – Presentations on 12/9/15
<b>Week 16</b> <b>December 9</b> <b>8:00 – 10:00 a.m.</b>  <b>Research Project Presentations</b>	Research Project presentations	<b>1) Research Project</b> – Final draft of paper due 12/9/15