Course Description
History of Science II: Modern Science will cover the major developments in science since the beginning in the 17th century. We will study some of the leading scientists and discuss some of the most important ideas that emerged in the fields of physics, chemistry, geology, and biology. Considering that this course covers over three centuries of material, we will only touch on some of the most important advances, but in all instances we will consider the social, cultural and intellectual contexts in which these ideas emerged. Some of the scientific ideas that we will discuss include the adoption of mechanical philosophy in the 17th century, the chemical revolution in France in the 18th century, the Darwinian revolution in the 19th century, Einstein and the rise of quantum physics, the Manhattan project, the space race, and major biological transitions in the 20th century such as the rise of genetics and molecular biology and the development of the Human Genome Project. In covering these topics, we will see the interplay between science and society how these topics have radically altered how humans have come to understand themselves, their origin, and the nature of the universe.

Much of the course will be lecture-based, but there will be time during each week for discussion. While we will spend much of our time exploring the context in which these ideas developed, we will also analyze the content of the science. This means that we will sometimes be discussing complex scientific ideas in order to understand why they were such a radical departure from the past and why they transformed the understanding of the world going forward.

Required Readings and Course Materials
Spring 2015

**Student Learning Outcomes**
This course is designed to help students:
- Identify important ideas and people in the development of the sciences since the 18th century
- Contextualize scientific ideas within their social, political, and cultural contexts
- Examine the ways science can have profound impacts on social and cultural attitudes
- Evaluate and analyze relevant primary and secondary source material

**Course Expectations and Policies**

**Assignments and Grading**

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<tr>
<th>Assignment</th>
<th>Percentage</th>
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<tr>
<td>Exam 1</td>
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<td>Exam 2</td>
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<td>Final Exam</td>
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<td>Final Paper</td>
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<tr>
<td>Primary Source Exercises (2 x 10% each)</td>
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<tr>
<td>Class Participation</td>
<td>10%</td>
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<td>Class Attendance</td>
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**Exam Format**
There will be two sections to each exam. In the first section you will be asked to complete "identifications" (IDs) of five different items (which could be a person, concept, object, or something similar that can be summarized in one paragraph). In the second section you will have to answer an essay question. We will review the essential qualities of good IDs and essays throughout the semester, paying specific attention to the test format the class period before the exam when we dedicate class time to review.

**Primary Source Exercises**
We will be reading several primary source texts that will relate to many of the topics that we discuss in class. For two of these readings you will be asked to write responses to questions that will require you to incorporate your analysis of the text and the context provided by lectures and readings. These will be take-home assignments and should be typed responses.

**Final Paper**
At the end of the semester you will be required to write a 4-6 page paper that will focus on one of the themes of the course. You will receive more information about the requirements and topic during the semester.

**Participation**
10% of your grade is determined by your participation in class. You will be assessed through a combination of written responses and quality participation in both large and small group discussions. Quality participation in groups includes making thoughtful comments, helping the group keep on task, and contributing to good group dynamics. There also will be opportunity for participation during lecture. Note that you can lose participation points for problematic or disruptive behavior that obstructs discussion in some way. That includes, but is not limited to, behaviors such as abusive or intimidating comments, threatening demeanor, dominating discussion, and distracting behaviors such as playing games on your computer/phone.
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**Attendance Policy**

For most of life’s activities, there are consequences for not being present. So it is in this class as well. You are allowed 4 absences before you begin losing points. For every absence after 4, you will lose half of your attendance grade. Thus, if you miss 6 classes you will lose all the points from your attendance grade, which is 10% of your overall class grade. If you miss more than 6 classes, you will begin losing points from your participation grade at the same rate (half per day missed). I do allow for excused absences, but only under a limited number of circumstances such as missing class for religious observances and official university obligations, and you must let me know ahead of time. Please note that I will not excuse an absence because you were sick and supplied a doctor's note unless that illness requires you to miss significant class time. In that case, you should be contacting me to discuss your options (and doing so with all your professors). This means that you should use your allotment of absences wisely.

**Missed and Late Work Policy**

In-class assignments: There will be no opportunity for you to make up any work that we do in class. In-class work will be used to assess participation and you cannot get participation credit if you are not in class. If you have an excused absence from class, this will not affect your grade.

Exams: Make-up exams or rescheduling will be granted only in extreme circumstances. Exceptions will not be made for oversleeping, lack of preparation, or forgetfulness. Come talk to me at least 2 weeks in advance if you foresee a significant scheduling conflict that you would like to discuss.

Out-of-class assignments: Late work will be docked 5% for every 12 hours that it is late.

**Plagiarism and Academic Misconduct:**

Knowingly presenting another person's language or ideas as your own constitutes plagiarism. **Don’t do it.** If you are caught plagiarizing or cheating in any way you will at the very least be failed for the assignment, and depending on the level of the transgression you could receive an "F" for a final grade and be referred to Office of the Dean of Students (ODOS). Plagiarism, the theft of intellectual property, is a serious crime. If you have any questions, talk to me. You can also find additional information at the university's website: [http://uncw.edu/ulc/writing/avoidplagiarism.html](http://uncw.edu/ulc/writing/avoidplagiarism.html)

**Student Roles and Expectations**

I expect that you will treat this class as a priority in your life, which means that you should make your best effort to attend every class and to turn in assignments on time. It is also your responsibility to communicate to me any issues you may have concerning disability (see the Office of Disability for more information) and to keep me informed of relevant situations (for instance, missing class for religious observances). Furthermore, I expect that your demeanor in class towards the instructors and other students will be respectful at all times and that you will uphold the UNCW honor code ([www.un cw.edu/odos/honorcode](http://www.uncw.edu/odos/honorcode)). Other than that, if you come to class with an open and inquisitive mind, I expect that you will gain a lot from this class.

**Instructor Roles and Expectations**

You can expect me to be respectful, honest, and open-minded, both in class and outside of it. I will also give you critical and timely feedback on all your work and will always make myself available outside of class if you wish to discuss any university or class-related issues.

**Proposed Class Schedule: HST 206**
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Please have readings completed before the date on which they are listed.

**Week 1 – Introduction + Science before 1700 (~50 pgs)**
Monday, January 12th – Introduction (no readings)
Wednesday, January 14th – Bowler, chp 1, Introduction
Friday, January 16th – Bowler, chp 2, The Scientific Revolution

**Week 2 – The Chemical Revolution: From Boyle to Lavoisier (~30 pgs)**
Monday, January 19th – No Classes (MLK Jr. Day)
Wednesday, January 21st – Bowler, chp 3, The Chemical Revolution
Friday, January 23rd – Joseph Priestly, *Experiments and Observations* [Blackboard]

**Week 3 – The Coming of age of Science in the 19th Century (~55 pgs)**
Monday, January 26th – Bowler, chp 14 – The Organization of Science
Wednesday, January 28th – Primary Source reading [blackboard]
Friday, January 30th – Bowler, chp 4 – The Conservation of Energy

**Week 4 – Natural History in the 19th Century (~75 pgs)**
Monday, February 2nd – Larson, chp 1, Bursting the Limits of Time
Wednesday, February 4th – Larson, chp 2, Growing Sense of Progress
Friday, February 6th – Larson, chp 3, On the Origins of Darwinism

**Week 5 – Darwin and the *Origin of Species* (~25 pgs)**
Monday, February 9th – Darwin’s *Origin of Species* [Blackboard]
Wednesday, February 11th – Review
Friday, February 13th – *Exam I*

**Week 6 – Biology Comes of Age (~60pgs)**
Monday, February 16th – Bowler, Chp 7 – The New Biology
Wednesday, February 18th – Bowler, Chp 8 - Genetics
Friday, February 20th – Primary Source Selections [Blackboard]

**Week 7 – Controversies in biology: Eugenics and Teaching Evolution (~60 pgs)**
Monday, February 23rd – Larson, chp 8, Applied Human Evolution
Wednesday, February 25th – Primary Source Selections [Blackboard]
Friday, February 27th – Larson, Chp 9, America’s Anti-Evolution Crusade
Last day to withdraw with a "W"

**Week 8 – Twentieth Century Physics (~60pgs)**
Monday, March 2nd – Primary Source Selections [Blackboard]
Wednesday, March 4th – Bowler, chp 11, Twentieth-Century Physics
Friday, March 6th – Bowler, chp 12, Revolutionizing Cosmology

**Week 9 – SPRING BREAK**
Monday, March 9th – Friday March 11th  SPRING BREAK

**Week 10 – Einstein's revolution (~10 pgs)**
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   Monday, March 16th – Einstein Primary Source
   Wednesday, March 18th – Review
   Friday, March 20th – Exam II

Week 11 – Science in the early 20th century (~60 pgs)
   Monday, March 23rd – Bowler, chp 19, Science and Medicine
   Wednesday, March 25th – Bowler, chp 20, Science and Technology
   Friday, March 27th – Primary source selections [Blackboard]

Week 12 – WWII and the Manhattan Project (~22pgs)
   Monday, March 30th – Wolfe, Intro and chp 1, The Atomic Age
   Wednesday, April 1st – Day after Trinity
   Friday, April 3rd – No Class (Easter Break)

Week 13 – The Atomic Age and the Military Industrial Complex (~40 pgs)
   Monday, April 6th – Wolfe, chp 2, The Military-Industrial Complex
   Wednesday, April 8th – Primary source readings [Blackboard]
   Friday, April 10th – Wolfe, chp 3, Big Science

Week 14 – The End of the Cold War (~50pgs)
   Monday, April 13th – Wolfe, chp 4 – Hearts and Minds and Markets
   Wednesday, April 15th – Wolfe, chp 6, The Race to the Moon
   Friday, April 17th – Wolfe, chp 7, The End of Consensus

Week 15 – Scientific developments after WWII (~50 pgs)
   Monday, April 20th – Larson, chp 12, Postmodern Developments
   Wednesday, April 22nd – Bowler, chp 13 Emergence of Human Sciences
   Friday, April 24th – Primary Source readings [Blackboard]

Week 16 – Review and Wrap-up
   Monday, April 27th – Review
   Wednesday, April 29th – Wrap-up

Final Exam:
   HST 206-001 (12:00-12:50pm) – Monday, May 4th from 11:30am-2:30pm
   HST 206-002 (1:00-1:50pm) – Friday, May 1st, from 11:30am-2:30pm