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## American Public University System

*The Ultimate Advantage is an Educated Mind*

**School of Arts and Humanities**

**HIST 270**

**History of Science**

**3 Credit Hours**

**8 Weeks**

Prerequisite: None

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### Instructor Information

**Instructor:** APUS Faculty

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## Course Description (Catalog)

Science is unquestionably central in shaping our modern world. Though often directed by the “big science” efforts of universities, global corporations, and nations, it is the individual scientist that populates these scientific communities. It is at this individual level, both professionally and personally, that science touches us most directly. Students earn advanced degrees in a wide range of specialties like physics, biology, and chemistry. Science is also a central component in related fields of medicine, geology, genetics, ecology, cosmology, and technology. On the personal level we encounter science everyday when we eat genetically enhanced food, take complicated medicines to combat illness, debate the origins of life, strive to understand new information about ourselves in the universe, use advanced technologies, and in many more ways.

These scientific developments do not emerge instantaneously from a vacuum. To fully understand science, one must have an appreciation of its history and how it has developed over time. The latest scientific advance is merely a snapshot of the present, and only looking at this image obscures our appreciation of the dynamic interaction between science and culture, and the ways that national, institutional, and individual goals have determined its trajectory. This broader perspective, gained only by the study of the history of science, serves as our central mission in this class.

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## Course Scope

### Introductory

In this course you will study the history of science from Ancient Greece to the present and begin to understand the reciprocal relationship it has had with its surrounding culture. While the bulk of our analysis will focus on Europe and North America, we will also explore the significance of science in the Islamic world, India, China, and the former Soviet Union. Throughout the next eight weeks you will begin to answer the following eight “big” questions such as:

1. What was the significance of Mesopotamian, Egyptian, Greek, and Roman developments in the history of what we now call “science”?
2. Were the “dark ages” really a desolate period for scientific activity in the Medieval era?
3. What was the vital role that Islamic scholars played in transmitting scientific ideas to the West?
4. Can science have a “revolution” and what was the so called “Scientific Revolution” which occurred from the 16th to the 17th centuries?
5. How did the Enlightenment ideas of the 18th century inspire scientific communities and new knowledge specializations?
6. Who was Charles Darwin, the relatively reclusive and quiet British naturalist, and why do his 19th century theories still inspire such passionate debate today?
7. Why did science become so closely tied with political power in the 20th century and who were the individuals that did the most to shape it?
8. What are some of the most salient characteristics of 21st century science and where lay the most significant challenges and opportunities for the future?

These eight questions will inspire each of the weeks of our course in succession. Through them you will gain a much deeper understanding of the ways that science is shaped, how it evolves, and where it has most greatly impacted our lives

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## Course Objectives

Upon completion of the *Graduate Seminar in U.S. History* students will be able to:

1. Explain the meaning of science from the Ancient Greeks to the present and the components of the

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scientific method.

2. Analyze the Medieval period in terms of scientific development and relationship to religious thoughts and institutions.
3. Describe the themes and causes of the Scientific Revolution.

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4. Explain the significance of the transition between geocentric and heliocentric cosmologies and their corresponding cultural impacts.
5. Summarize the relationship between Enlightenment ideas and science and the emergence of collaborative and specialized scientific activities.
6. Examine the ramifications of the Darwinian Revolution on today's ideas.
7. Describe the relationship between science and politics in the 20th century and the related revolutions in physics and space science.
8. Explain the recent development in the 21st century sciences and the challenges of globalization, gender equality, and the complex relationship to religious beliefs.

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### Course Delivery Method

This course delivered via distance learning will enable students to complete academic work in a flexible manner, completely online. Course materials and access to an online learning management system will be made available to each student. Online assignments include discussion Forum questions accomplished in groups through a threaded forum, examination, and individual assignments submitted for review by the Faculty Member.

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### Course Materials

#### Required Textbooks

The following book is REQUIRED reading for this class:

- Bowles, Mark D. and Kaplan, Barbara, *Science & Culture throughout History* (Kendall Hunt, 2013).

#### Additional Required Materials from APUS Library: (See Course Outline)

- Week 1: Lloyd, G. E. R., and Nathan Sivin. *The Way and the Word: Science and Medicine in Early China and Greece*. New Haven, Conn: Yale University Press, 2004.
- Week 2: Freely, John. *Light from the East How the Science of Medieval Islam Helped to Shape the Western World*. London: I.B. Tauris, 2010
- Week 3: Shapin, Steven. *The Scientific Revolution*. Chicago: Univ. of Chicago Press, 2004.
- Week 4: Dupré, Louis K. *The Enlightenment and the Intellectual Foundations of Modern Culture*. New Haven: Yale University Press, 2004.
- Week 5: Ruse, Michael. *Charles Darwin*. Malden, MA: Blackwell Pub, 2008
- Week 6 and 7: Cassidy, David C. *A Short History of Physics in the American Century*. Cambridge, Mass: Harvard University Press, 2011.

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- Week 8: Brooke, John Hedley, and Ronald L. Numbers. Science and Religion Around the World. New York: Oxford University Press, 2011.
- Week 8: Dixon, Thomas. Science and Religion A Very Short Introduction. New York: Oxford University Press, 2008.
- Week 8: McGrayne, Sharon Bertsch. Nobel Prize Women in Science: Their Lives, Struggles, and Momentous Discoveries. Washington, D.C.: Joseph Henry Press, 1998.

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- Week 8: McClellan, James E., and Harold Dorn. *Science and Technology in World History An Introduction*. Baltimore: Johns Hopkins University Press, 2006.

### Optional Resources (Recommended)

- Marius, Richard, and Melvin E. Page. *A Short Guide to Writing About History*. Boston: Pearson, 2012.
- *The Chicago Manual of Style*, 15th ed. Chicago: University of Chicago Press, 2003.
- Turabian, Kate L. *A Manual for Writers of Research Papers, Theses, and Dissertations: Chicago Style for Students and Researchers*. Chicago: University of Chicago Press, 2007. *Purchase is highly recommended.*
- Turabian Citation Guide Online  
[http://www.press.uchicago.edu/books/turabian/turabian\\_citationguide.html](http://www.press.uchicago.edu/books/turabian/turabian_citationguide.html)

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### Evaluation Procedures

This course requires thoughtful reading and analysis. The discussion, assignments, and research paper are designed to allow you to demonstrate a thorough comprehension of the concepts introduced in the readings. Your perception of the issues introduced in these readings will be shaped by your worldview and experience. Feel free to report your views but do so in a considerate and thoughtful manner, and they must be grounded in scholarly evidence. Since this is a graduate-level coursework, do not merely regurgitate information from the reading assignments. You are expected to analyze, critique, and agree, or disagree, with the authors. My expectation is that your work is original. Academic integrity is essential. Scrupulously acknowledge the source of direct quotes, paraphrased passages, and another's ideas.

There are many ways to measure student performance. The following guidelines apply:

- Faculty grade writing assignments using the APUS writing rubrics appropriate for the level of the course. Rubrics ensure that grading is consistent across the institution, and that all key areas of the graded work receive attention. It is also advisable to share the rubric with students, so that they are aware of the instructor's expectations. Rubrics are the university approved basis for grading written assignments.
- For written assignments, students should upload assignments by selecting the Assignments link on the left hand side of the classroom page.
- For discussions select the Forums link on the left hand side of the classroom page. The Forums should not be used for administrative communications.

### Forums: 40% of your grade (8 Forum postings, 50 points each)

Respond to the Forum question(s) of the week in a main post that is at minimum 250 words and at maximum 500 words. Students should not provide just a summary of the readings in responding to the question, but support an interpretation or argument. However, this is not a mere opinion piece; you must use the reading assignments and outside research (all resources must be cited in proper format). Each response MUST include citations to the textbook and to the readings from the APUS library. Use these sources to assist you in answering the question you select for the week.

**IMPORTANT NOTE:** Forums 2 through 8 all have multiple questions associated with them. You only have to select one to answer. As I do not want duplication until all of the questions have been answered, I recommend that you "sign up" for

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your choice whenever you like (after the week begins) by simply posting a note in the relevant thread with your name. Again, there are no duplications allowed until all of the questions have been taken, and after that point try to evenly spread out responses. This helps ensure that we cover all the questions for the week.

To meet the minimum forum requirements for each forum assignment, respond to AT LEAST three other student postings, plus any follow-up questions I ask. All of these posts must be a minimum of 100 words. As for the follow-up questions, I try to comment on everyone who posts on time during a week. If I do not, or if you post late, this does not mean you are

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exempt from answering an additional question from me. In that case simply select a follow-up question I asked another student and respond. This will enable you to meet the minimum discussion requirements for the week. For more on this read this link at My Forum Philosophy. *The introduction forum is the only discussion where a response to an additional follow-up question from me is not required. The introduction forum also does not have a sign-up question.*

INITIAL POST IS DUE ON THURSDAY, RESPONSES ARE DUE BY SUNDAY. ALL DEADLINES ARE 11:55 PM EASTERN TIME ON THE DAY DUE.

### **Quizzes: Week 4 and Week 8 (20% of your grade)**

In Week 4 and in week 8 you will take an untimed, 20 question multiple choice quiz that covers the reading in the main textbook entitled *Science and Culture* (not the videos or the APUS Library readings) in the course. This is an open book test that concentrates on the big ideas, and not the trivial aspects of the readings. The intent of the quiz is to provide you questions on what I consider to be the most important take-away concepts from our readings. Though the syllabus suggests you take this exams at the end of weeks 4 and 8, and I recommend that these are the best times for you to take them, you may actually do it any time during the course. Each quiz may be taken only one time.

**WARNING:** After you take the quiz, there are two Submit buttons. After first Submit there is a second one that asks you to confirm the submission. It is the second click that completes the process and sends the test to the server. If you do not do this, then unfortunately you may have to retake the quiz.

### **Current Events Paper: Week 5 (15% of your grade)**

In Week 5 you will submit a current events paper. In it you will look in the daily news for a scientific topic that interests you, and then you will go beyond what is reported in the article by discussing the long range history of this topic. There are many sources in which you can go to find a current events science story. Good examples of websites where you can find an article include:

1. <http://www.nytimes.com/pages/science/index.html>
2. <http://www.smithsonianmag.com/science-nature/>
3. <http://www.wired.com/wiredscience/>
4. <http://science.nasa.gov/science-news/>
5. <http://www.sciencenews.org/>
6. <http://news.sciencemag.org/>
7. <http://www.scientificamerican.com/sciammag/>

The article must have an author and a publication date. Avoid selecting a topic which has very little history associated with it. I would like a minimum time span of 100 years discussed in your paper. The topic must be related to our textbook in some way that you can connect in your paper.

Technical and Formatting Requirements: With this assignment, you will learn how to do proper and adequate research and write a short paper with a central thesis statement. This paper is at least TWO complete double-spaced pages of text (Times New Roman, font size 12), not including bibliography or title page, and you must cite a minimum of THREE sources, in addition to the selected current events article and our textbook. These sources are as follows:

a. ONE primary source from the era in which you are writing about. As a reminder, a primary source "is a document or physical object which was written or created during the time under study. These sources were present during an experience or time period and offer an inside view of a particular event."  
<http://www.princeton.edu/~refdesk/primary2.html>.

b. TWO scholarly secondary sources from peer reviewed journals or books. These must be from reputable publishers (such as university presses for books or databases like JSTOR) as found in the APUS library. What is a



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secondary source? "A secondary source interprets and analyzes primary sources. These sources are one or more steps removed from the event." <http://www.princeton.edu/~refdesk/primary2.html>. Web sites are not approved research for this assignment. Exceptions are scholarly websites and documents available through the APUS Online Library (*Wikipedia* and other sources like it are not considered a valid academic source).

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I will submit all of the final papers into TurnItIn which is a plagiarism checker. If I find evidence of plagiarism, I will give you a zero for the paper. To ensure this does not happen make sure you familiarize yourself with the meanings of plagiarism (see the policies section of this syllabus), take careful steps in your note taking process to avoid a potential for a mistaken plagiarism, and then finally submit your own paper to TurnItIn prior to the course deadline. This review will serve as an important check for you.

You MUST post your Current Events Paper to the Assignments list as a Word Document to receive a grade. If you only post to the Forum then you will get a zero for the week.

### **Research Paper: Week 8 (25% of your grade)**

We have covered a great deal of time and geographical locations in our class. For the final paper you are to select the central topic of one of our weeks and write a paper that makes an argument as to why this was a period of most overall significance in the history of science. Significance should be measured by its impact on the time in which it occurred, and not by a measure of science today. For example, Ptolemy's model of the universe is not followed today, but this does not discount the importance of his work in the period in which he lived. Therefore, an argument could be made for any of our weekly topics. Your work is graded not on which week you select, but instead the quality of your argument as to its significance.

Technical and Formatting Requirements: With this assignment, you will learn how to do proper and adequate research and write a short paper with a central thesis statement. This paper is at least FIVE complete double-spaced pages of text (Times New Roman, font size 12), not including bibliography or title page, and you must cite a minimum of FOUR sources plus our textbook. These sources are as follows:

a. TWO primary sources from the era in which you are writing about. As a reminder, a primary source "is a document or physical object which was written or created during the time under study. These sources were present during an experience or time period and offer an inside view of a particular event."

<http://www.princeton.edu/~refdesk/primary2.html>.

b. TWO scholarly secondary sources from peer reviewed journals or books. These must be from reputable publishers (such as university presses for books or databases like JSTOR) as found in the APUS library. What is a secondary source? "A secondary source interprets and analyzes primary sources. These sources are one or more steps removed from the event." <http://www.princeton.edu/~refdesk/primary2.html>. Web sites are not approved research for this assignment. Exceptions are scholarly websites and documents available through the APUS Online Library (*Wikipedia* and other sources like it are not considered a valid academic source).

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## Overview of Course Assignments

Grade Instruments	Points	Percentage
Week 1 Forum	50	5%
Week 2 Forum	50	5%
Week 3 Forum	50	5%
Week 4 Forum	50	5%
Week 4 Quiz	150	15%
Week 5 Forum	50	5%
Week 5 Current Events Paper	100	10%
Week 6 Forum	50	5%
Week 7 Forum	50	5%
Week 8 Forum	50	5%
Week 8 Quiz	150	15%
Week 8 Research Paper	200	20%
<b>Total</b>	<b>1000</b>	<b>100%</b>

Please see the [Student Handbook](#) to reference the University's grading scale

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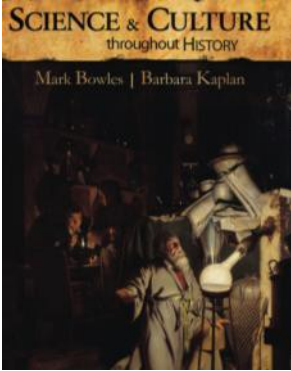
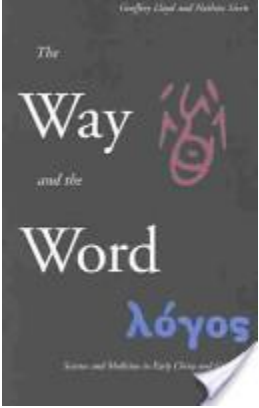
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### Course Outline

Week & Topics	Learning Objectives	Readings and Videos	Assignments
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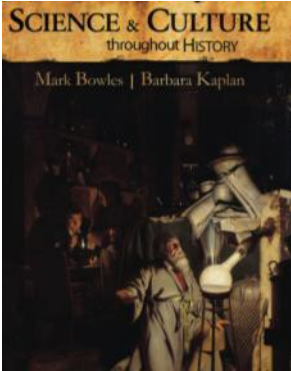
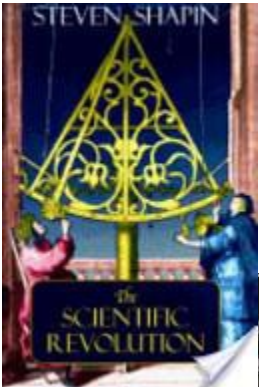
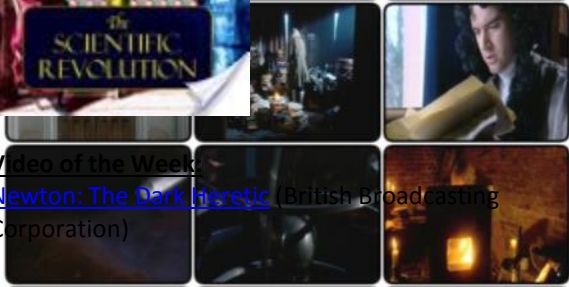
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<p><b>Week 1:</b>  <b>“Science” in Antiquity</b></p>	<p>Explain the meaning of science from the Ancient Greeks to the present and the components of the scientific method.</p>	<p><b><u>Class Textbook:</u></b>  <i>Science &amp; Culture: Early Culture and Science Connections.</i>            Chapter 1, p. 1-26.</p>  <p><b><u>APUS Library Selections:</u></b>  <i>Way and the Word : Science and Medicine in Early China and Greece</i>            Geoffrey Lloyd and Nathan Sivin.  <a href="#">Chapter 1, p. 1-15.</a>  <a href="#">Chapter 6, p. 239-251.</a></p>  <p><b><u>Videos of the Week:</u></b>  <a href="#">Pro f e s s o r B o w l e s ’ W e l c o m e t o t h e C l a s s</a>  <a href="#">The Brainy Barbarians</a> (British Broadcasting Corporation)</p>	<p>Forum #1: It is very important that you submit and participate in the Introduction Forum. Please introduce yourself to me and the class. Share where you work or plan to work after completing your program, your family, and any hobbies or special interests. Also tell us why you are taking this course and what you hope to gain from obtaining your degree. In addition, please take a look at the course objectives in the syllabus and discuss the relevance to your career goals</p> <p>Also, address all of the following questions:            What is the significance of science to our society? Why is it important to understand the history of science? What is the relationship between science and culture?</p> <p>Finally, attest to the AMU/APU Honor Code in the Introduction Forum by reading and replying with your typed signature.</p> <p>Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 1.</p>
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<p><b>Week 2: Medieval and Renaissance Science</b></p>	<p>Analyze the Medieval period in terms of scientific development and relationship to religious thoughts and institutions.</p>	<p><b>Class Textbook:</b> <i>Science &amp; Culture: Eastern, Medieval, and Renaissance Science.</i> Chapter 2, p. 27-54.</p>  <p><b>APUS Library Selections:</b> <i>Light from the East : How the Science of Medieval Islam Helped to Shape the Western World</i> Freely, John. <a href="#">Prologue</a>, p. ix-xii. <a href="#">Chapter 3</a>, p. 23-35. <a href="#">Chapter 5</a>, p. 48-58. <a href="#">Chapter 16</a>, p. 164-171.</p> <p><b>Video of the Week:</b> <a href="#">The Transmission of Roger Bacon</a> (British Broadcasting Corporation)</p>	<p><b>Forum #2</b> (Sign up for one question after the week starts. No duplication until all the questions are selected, and then evenly select after that.)</p> <ol style="list-style-type: none"> <li>1. If China had not been so isolated, in what ways do you think science would have developed differently there?</li> <li>2. Why were the early Muslim caliphs so interested in preserving the ideas of ancient science?</li> <li>3. Why was practical astronomy so highly cultivated in the Arab world?</li> <li>4. Describe ways in which the church both supported and retarded scientific activity? in the medieval period. What reasons can you give for this two-sided approach?</li> <li>5. Science in early China achieved great sophistication, yet was superseded by the West beginning in the Renaissance. Why do you believe this happened?</li> <li>6. What circumstances of life in Italy and Sicily made these regions fertile ground for the acquisition of classical scientific ideas?</li> </ol> <p>Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 2.</p>
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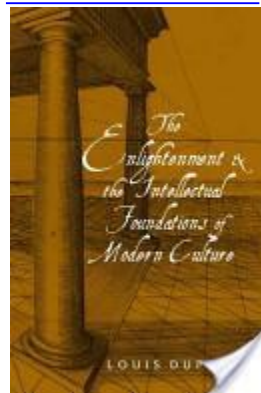
<p><b>Week 3: The Scientific Revolution</b></p>	<p>Describe the themes and causes of the Scientific Revolution.</p>	<p><b><u>Class Textbook:</u></b>  <i>Science &amp; Culture: Revolutions in Science.</i>            Chapter 3, p. 55-78.</p> <p>Chapter 4, <i>Science &amp; Culture: From Magic to Newton.</i>            Chapter 4, p. 79-104.</p>  <p><b><u>APUS Library Selections:</u></b>  <i>The Scientific Revolution</i>            Steven Shapin.  <a href="#">Introduction, p. 1-14.</a>  <a href="#">Chapter 1, p. 15-64.</a></p>  <p><b><u>Video of the Week:</u></b>  <a href="#">Newton: The Dark Heretic</a> (British Broadcasting Corporation)</p> 	<p><b>Forum #3</b> (Sign up for one question after the week starts. No duplication until all the questions are selected, and then evenly select after that.)</p> <ol style="list-style-type: none"> <li>1. Why are the 16th and 17th centuries known as the “incubation period of the modern world”?</li> <li>2. Do you think that science can have revolutions? If so, which aspect of the Scientific Revolution do you find the most revolutionary?</li> <li>3. What is the meant by the phrase the “death of nature” and it’s relationship to the founders of the Scientific Revolution?</li> <li>4. What was the significance of magic in relationship to the Scientific Revolution?</li> <li>5. What were some of the reasons that the new mechanistic view of the universe was important during the Scientific Revolution?</li> <li>6. Try to state in your own words Kuhn’s thesis regarding the Scientific Revolution.</li> </ol> <p>Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 3.</p>
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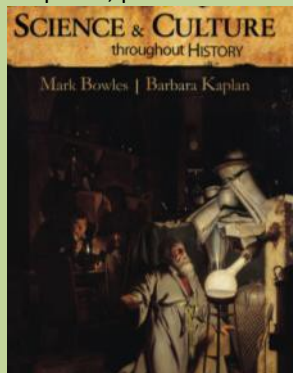
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**Week 4: Science in the Enlightenment**

Summarize the relationship between Enlightenment ideas and science and the emergence of collaborative and specialized scientific activities.

**Class Textbook:**

*Science & Culture, The Enlightenment.*  
Chapter 5, p. 105-132.



**APUS Library Selections:**

*Enlightenment and the Intellectual Foundations of Modern Culture* Louis K Dupré. [Introduction, p. ix-xiv](#) [Chapter 1, p. 1-17.](#) [Chapter 2, p. 18-44.](#) [Conclusion, p. 334-339.](#)

**Video of the Week:**

["The Invention of Air: A Story of Science, Faith, Revolution, and the Birth of America"](#) (C-Span2 Book TV)

**Forum #4** (Sign up for one question after the week starts. No duplication until all the questions are selected, and then evenly select after that.)

1. What is the relationship between 18<sup>th</sup> century science and the philosophy of the Enlightenment?
2. What were some of the key scientific specializations that emerged in the 18th century? Is it a positive or negative development for science to become segmented into narrow fields of inquiry?
3. What role did women play in the promotion of popular science?
4. Why do you think Lavoisier was so successful, and why did he receive so much acclaim from the scientific community during his lifetime?
5. What role did the invention of new laboratory apparatuses play in the advancement of chemical knowledge in the 17th and 18th centuries?
6. What were the significant developments in chemistry during the Enlightenment? Why do you think chemistry did not develop as a distinct scientific field before the 18th century?

Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 4.

It is recommended you take Quiz #1 this week.

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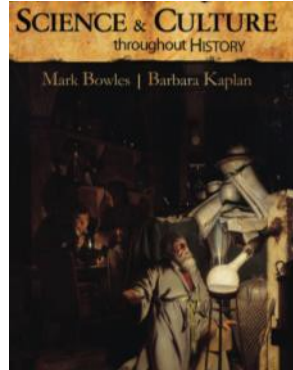
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**Week 5: 19<sup>th</sup>  
Century Biology**

Examine the ramifications of the Darwinian Revolution on today's ideas.

**Class Textbook:**

*Science & Culture*, Romanticism and Charles Darwin.  
Chapter 6, p. 133-158.



**APUS Library Selections:**

*Charles Darwin.*

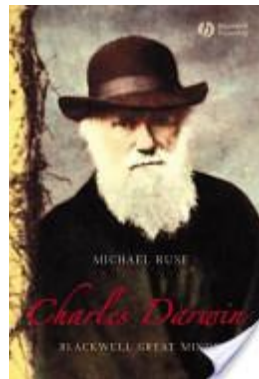
Michael Ruse.

[Introduction, p. x-xii.](#)

[Chapter 1, p. 1-20.](#)

[Chapter 2, p. 21-53.](#)

[Chapter 12, p. 287-307.](#)



**Video of the Week:**

[Charles Darwin: Evolution's Voice](#) (A&E Television Networks)

**Forum #5** (Sign up for one question after the week starts. No duplication until all the questions are selected, and then evenly select after that.)

1. In what ways does the 19th-century era known as Romanticism compare and contrast with the period of the Enlightenment in the 18th century?

2. Explain some of the most significant advances in medical science in the 19th century.

3. Who were some of the scholars that considered evolutionary ideas before Darwin? How did their ideas contrast with his?

4. Why did Darwin wait so long to publish *On the Origin of Species*?

5. What explains the persistent discussion and debate of Darwin's theory of evolution even though it was first published over 150 years ago? Why hasn't the debate concluded?

6. What was the significance of Darwin's voyage? Do you think that Darwin could have developed his theories of evolution without having taken his five-year ocean voyage? Why or why not?

Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 5.

**Current Events Paper is due by Sunday night at 11:55PM Eastern.**

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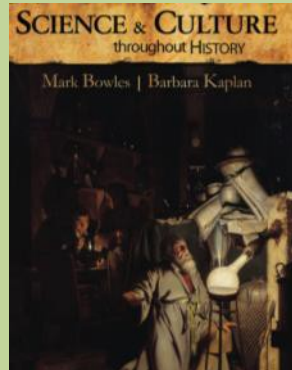
**Week 6: 20<sup>th</sup> Century Medicine and Physics**

Appraise the development of the history of medicine and physics in the 20<sup>th</sup> century.

**Class Textbook:**

*Science & Culture*, 20<sup>th</sup> Century Medicine and Physics.

Chapter 7: p. 159-186



**APUS Library Selections:**

*A Short History of Physics in the American Century*

David C. Cassidy.

[Introduction](#), p. 1-5.

[Chapter 1](#), p. 6-24.

[Chapter 2](#), p. 25-51.

[Chapter 3](#), p. 52-71.

**Video of the Week:**

[Einstein](#) (A&E Television Networks)

**Forum #6** (Sign up for one question after the week starts. No duplication until all the questions are selected, and then evenly select after that.)

1. What one advancement in 19th-century **science** most affected 20th-century medicine? Defend your position.

2. What one advancement in 19th-century **technology** most affected 20th-century medicine? Defend your position.

3. What were some of the main challenges that physicists faced as they entered the 20<sup>th</sup> century?

4. In what ways did Einstein's theory of relativity resonate with the culture? Do you see examples even today where this has an impact?

5. When did physics "come of age" and what did this mean for the profession?

6. What were some of the key challenges that physicists faced during the Depression?

Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 6.

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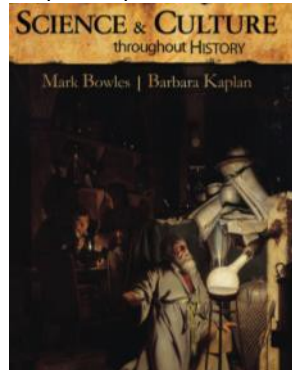
**Week 7: 20<sup>th</sup> Century War and Space Science**

Describe the relationship between science and politics in the 20th century and the related revolutions in physics and space science.

**Class Textbook:**

*Science & Culture, War and Space in the 20<sup>th</sup> Century.*

Chapter 8, p. 187-210



**APUS Library Selections:**

*A Short History of Physics in the American Century*  
David C. Cassidy.

[Chapter 4, p. 72-89.](#)

[Chapter 5, p. 90-105.](#)

[Chapter 6, p. 106-123.](#)

[Chapter 7, p. 124-143.](#)



A Short History  
of Physics in the  
American Century  
DAVID C. CASSIDY



**Video of the Week**

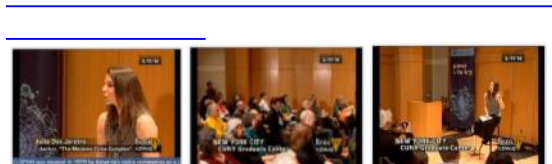
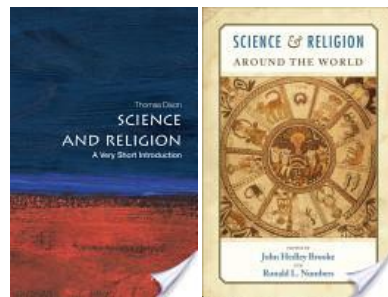
[Manhattan Project](#)

**Forum #7** (Sign up for one question after the week starts. No duplication until all the questions are selected, and then evenly select after that.)

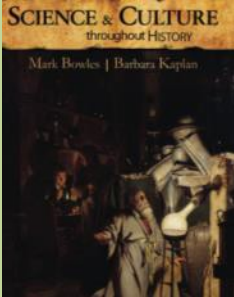
1. Do you feel that the knowledge of how to split an atom is good or bad for society? Explain your answer.
2. What is the relationship between physics and warfare? What was the "physicists' war"?
3. What is meant by the phrase "taming the endless frontier"?
4. What was the importance of landing men on the Moon? Was it a political, military, scientific, or cultural success? Explain your answer.
5. Define the main components of the "New Physics." What was its significance?
6. What was the scientific, cultural, and military impact of Sputnik?

Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 7.

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<p><b>Week 8: Science Today</b></p>	<p>Explain the recent development in the 21st century sciences and the challenges of globalization, gender equality, and the complex relationship to religious beliefs.</p>	<p><b>Class Textbook:</b> <i>Science &amp; Culture</i>, Science Today and Into the Future. Chapter 9, p. 211-234.</p> <p><i>Science &amp; Culture</i>, Science and Religion. Chapter 10, p. 235-256.</p>  <p><b>APUS Library Selections:</b> <i>Science and Religion Around the World</i> Roland Numbers and John Brooke, <a href="#">Chapter 12, p. 278-294.</a></p> <p><i>Science and Religion : A Very Short Introduction</i> Thomas Dixon , <a href="#">Chapter 1, p. 1-17.</a></p> <p><i>Nobel Prize Women in Science</i> Sharon Bertsch McGrayne <a href="#">Chapter 1, p. 1-8</a></p> <p><i>Science and Technology in World History.</i> James McClellan and Harold Dorn. <a href="#">Introduction, p. 1-2.</a> <a href="#">Conclusion, p. 437-439.</a></p> <p><b>Video of the Week:</b> <a href="#">The Madame Curie Complex: The Hidden History of</a></p>	<p><b>Forum #8 (Sign up for one question after the week starts. No duplication until all the questions are selected, and then evenly select after that.)</b></p> <ol style="list-style-type: none"><li>1. If you could meet one of the women scientists we have read about, who would you select and why? What questions would you ask her?</li><li>2. Why was access to scientific disciplines important to women?</li><li>3. Is Big Science really “big technology”? Argue your case.</li><li>4. Are religion and science in conflict, harmony, or is the relationship best described as “complex”?</li><li>5. Do you think it is important for us to understand the origins of the universe? Explain your answer.</li><li>6. Is the relationship between science and religion important? Why or why not?</li></ol> <p><b>Post your initial response to the Forum by THURSDAY. Respond to at least two other students by SUNDAY of Week 8.</b></p> <p><b>Quiz #2 must be taken by Sunday night at 11:55PM Eastern.</b></p> <p><b>Research Paper is due by Sunday night at 11:55PM Eastern.</b></p>
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## Policies

Please see the [Student Handbook](#) to reference all University policies. Quick links to frequently asked question about policies are listed below.

[Drop/Withdrawal Policy](#)

[Plagiarism Policy](#)

[Extension Process and Policy](#)

[Disability Accommodations](#)

## Writing Expectations

Assignments completed in a narrative essay or composition format must follow the accepted guidelines of the American historical profession, which is the *Chicago Manual of Style*. If your specialization uses other accepted writing guidelines (such as MLA or APA) these will be accepted.

## Late Assignments

Because we strive to make this as near a physical classroom environment as possible, all students must adhere to the due dates listed in the course home page. Should you expect to have a problem meeting a deadline, you should notify me as soon as you are aware of the situation. Because of the nature of the Forums—they are to simulate actual discussions as if we were meeting together weekly and sharing in an actual physical setting—any submissions made past the posted due dates will NOT be graded unless prior arrangement is made with me. Any other late assignments will lose one letter grade per unexcused late day. If the final research paper is late, it receives a zero.

## Netiquette

Online universities promote the advance of knowledge through positive and constructive debate--both inside and outside the classroom. Discussions on the Internet, however, can occasionally degenerate into needless insults and “flaming.” Such activity and the loss of good manners are not acceptable in a university setting--basic academic rules of good behavior and proper “Netiquette” must persist. Remember that you are in a place for the fun and excitement of learning that does not include descent to personal attacks, or student attempts to stifle the discussion of others.

- **Technology Limitations:** While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The Educator classroom may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-coding or other visual effects will not translate in your e-mail messages.
- **Humor Note:** Despite the best of intentions, jokes and--especially--satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add “emoticons” to help alert your readers: ;-), :), ☺

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## Disclaimer Statement

Course content may vary from the outline to meet the needs of this particular group.

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## Online Library

The Online Library is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Online Library provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to [librarian@apus.edu](mailto:librarian@apus.edu).

- **Inter Library Loans:** The University maintains a special library with a limited number of supporting volumes, collection of our professors' publication, and services to search and borrow research books and articles from other libraries.
- **Electronic Books:** You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- **Electronic Journals:** The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- **Smarthinking:** Students have access to ten free hours of tutoring service per year through [Smarthinking](#). Tutoring is available in the following subjects: math (basic math through advanced calculus), science (biology, chemistry, and physics), accounting, statistics, economics, Spanish, writing, grammar, and more. Additional information is located in the Online Library. From the Online Library home page, click on either the "Writing Center" or "Tutoring Center" and then click "Smarthinking." All login information is available.

**Request a Library Guide for your course** (<http://apus.libguides.com/index.php>)

The AMU/APU Library Guides provide access to collections of trusted sites on the Open Web and licensed resources on the Deep Web. These are specially tailored for academic research at APUS:

- Program Portals contain topical and methodological resources to help launch general research in the degree program. To locate, search by department name or navigate by school.
- Course Lib-Guides narrow the focus to relevant resources for the corresponding course. To locate, search by class code (e.g., HIST500) or class name.

If a guide you need isn't available yet, let us know by emailing the APUS Library: [librarian@apus.edu](mailto:librarian@apus.edu)

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## Selected Bibliography

See the reference section at the back of *Science & Culture throughout History*.

Students are directed, as well, to the Department of History & Military Studies portal at the APUS Online Library: [http://www.apus.edu/Online-Library/departments/military\\_st.htm](http://www.apus.edu/Online-Library/departments/military_st.htm).