LSO322YA Five Greatest Ideas In Science

Instructor: J.K. Griffin

Term Paper

Outline Due: 2 March 2018

Paper Due: 6 April 2018 (Hard copy in class and Safe Assign online)

This assignment is worth 15% of your final mark (10% for paper and 5% for the annotated bibliography/outline). These items will be listed separately in the Grade Centre.

In this course, we have examined great ideas from five vastly different branches of science. All these discoveries have one thing in common-the extraordinary work of scientists who advanced their disciplines in varied ways. These advances are related (but not limited) to: improved instrumentation or technical innovations; novel mathematical theories or models; unique observations or new interpretations of prior observations and sound experimental design.

The choice of topic is very broad, in the hope that you will select something of personal interest. You may write about a scientist, a field of study, or a technology as described below.

Choose a scientist whose work contributed to development of one of our “Great Ideas” or to another Great Idea that you identify and write a biography of that individual. Your biography should include some details of the person’s life and education, especially influential mentors or teachers. Describe their scientific contributions and the impact of these findings to knowledge in that field. In addition to assessing their contribution to their specific discipline, discuss how the individual and their work may have influenced other scientists and society at large.

Alternatively, you may choose to discuss the development of one of the great ideas themselves or the development of another field of interest to you. Please feel free to discuss these ideas with me, I am happy to help focus topics or suggest directions for your paper. This is part of the purpose of the outline.

Your essay should be 1750-2000 words in length (about 7-8 pages double spaced, 12 pt font). The paper should have at least 8 different sources. Include in-text citations for information cited and quotations for text used directly. You may use APA, MLA or American Chemical Society styles for citation and referencing but having chosen a format you must apply it consistently throughout the paper. The College library has excellent resources to assist in using the MLA and APA formats including examples and templates for different types of sources. Take a look at the Library’s website for more information (e.g. <http://seneca.libguides.com/mla> and <http://seneca.libguides.com/apa>).

The first step in preparing this term paper will involve submitting an outline. The outline will include a statement of the topic you have chosen basically “Who” your biography will be written about or “What” your field of interest is and an annotated bibliography of at least 5 scholarly references you will use in preparing your paper. For each source write 3 sentences describing the information contained in that source.

For example here is an annotated bibliography entry for a title from the Seneca Library on Albert Einstein. I used the “Send Citation to Clipboard” to copy and paste the reference below into this document. I then wrote the brief summary below:

Einstein, A., Dukas, H., & Hoffmann, B. (2013). Albert Einstein, The Human Side Glimpses from His Archives. Princeton: Princeton University Press.

This book contains examples of Einstein’s correspondence with many different people. Many people wrote to Einstein to ask him questions and he always answered carefully and thoughtfully. Many of the letters are notable for their humorous touches, showing than Einstein was not only a brilliant mathematician but also a thoughtful correspondent with wide-ranging interests.

You may use books, journal articles (Print or online), websites; patents; newspapers or technical specifications. Take care in using personal websites for scholarly information as they may not be subject to any review and thus may not be correct. These references should be independent of one another-so reference #1 should not be a Wikipedia article and references #2-5 should be the reference list from the same Wikipedia article. Drawing information from diverse sources will give you much more information and you will gain many different perspectives on the life and work of some of these scientists or the development of your field of interest. This will give your paper breadth and more thoroughly inform your own ideas on your chosen topic.

Possible Scientist Biography Topics:

1. Isaac Newton (Physics)
2. Galileo Galilei (Physics/Astronomy)
3. Tycho Brahe (Physics/Astronomy)
4. Albert Einstein (Theory of Relativity)
5. Robert Oppenheimer (Physics)
6. Dmitri Mendeleev (Chemistry)
7. John Dalton (Chemistry)
8. Marie Curie (Chemistry/Radioactivity)
9. Niels Bohr (Chemistry)
10. Theodor Schwann (Cell Theory)
11. Matthias Schleiden (Cell Theory)
12. Edwin Hubble (Cosmology)
13. Luigi Galvani and Alessandro Volta (Electrochemistry)
14. Carolus Linnaeus (Taxonomy/Biology)
15. Alexander Fleming (Discovery of Antibiotics)
16. James Watson and Francis Crick (Structure of DNA)
17. Linus Pauling (Biochemistry)
18. Gregor Mendel (Genetics)
19. Charles Darwin (Evolution)
20. Kary Mullis (Molecular Biology- Polymerase Chain Reaction)
21. Edward Rutherford (Chemistry)
22. Robert Hooke (Cell Theory/Microscopy)
23. John Tuzo Wilson (Geology) \*\*\*Canadian Scientist\*\*\*
24. Louis Pasteur (Microbiology)
25. Joseph Lister (Medicine/Microbiology)
26. Nikola Tesla
27. Ada Lovelace
28. Michio Kaku
29. Alan Turing
30. Nikolaus Copernicus

Possible Fields:

1. Space Travel/Planetary Sciences/Cosmology
2. Vulcanology (Study of volcanos-think Vesuvius and Pompeii)
3. Manhattan Project/Atomic Bomb
4. Relativity
5. Materials science as it relates to computing/Artificial Neural networks
6. Dark Matter
7. Stem Cells in medical research and treatment
8. Modern Crime Scene Investigation techniques
9. Microscopy (Light or Electron)

Don’t let this list limit you there are lots of other possibilities as well! Please let me know the topic you are considering to ensure that there are enough suitable sources.