Extra Credit
Math 1300, Section 301E
Spring 2018

Instructions

1. Each person may choose **one** of the following reading assignments, and **no two people** may choose the same reading assigment. These are either **one or two chapters from a book** or **one or two articles**, as indicated below. I will pass this sign-up sheet in class on **Thursday, April 12**, so look over it and choose a few potential options. The texts are all concerned with the historical development of calculus, its philosophical underpinnings, and its physical applications.

2. Once chosen, the chapter or article should be read carefully. Take notes on the main points, meditate on these, and condense your notes and thoughts into a tight **three- to five-page summary with analysis**. It isn't important that it be rigidly structured into an introduction, body, and conclusion, but you need enough structure so that your thoughts *cohere into a flowing, and well-organized* description with analysis.

3. The **due date** is **Thursday, May 3**, the day of the Final Exam, in class. No late assigments will be accepted. To help with this, I will make a **rough draft due Tuesday, April 24**.

4. This assigment is worth a maximum of **5% of the total grade**. Grading will be based on the quality of the writeup, both in terms of content and writing style.

5. The **formatting guidelines** are:

    (a) **Spacing** should be double-space.

    (b) **Font size** should be 12pt.

    (c) **Font** should be Times or New Roman.

    (d) **Side margins** should be 1.25in.

    (e) **Top and bottom margins** 1in each.

Book Chapter Readings: You have three books to choose chapters from:

1. Boyer, *The History of the Calculus and its Conceptual Development*. Everyone doing a chapter of this should read the Introductory and Conclusion chapters, but the main body chapters to choose from are:

    (a) Chapter 2 - Conceptions in Antiquity

    (b) Chapter 3 - Medieval Contributions

    (c) Chapter 4 - A Century of Anticipation

    (d) Chapter 5 - Newton and Leibniz

    (e) Chapter 6 - The Period of Indecision

    (f) Chapter 7 - The Rigorous Formulation

2. Westfall, *The Construction of Modern Science: Mechanisms and Mechanics*. Everyone doing a chapter of this should read the Introduction, but the main body chapters to choose from are:

    (a) Chapter 1 - Celestial Dynamics and Terrestrial Mechanics

    (b) Chapter 2 - The Mechanical Philosophy

    (c) Chapter 3 - Mechanical Science

    (d) Chapter 6 - Organization of the Scientific Enterprise

    (e) Chapter 7 - The Science of Mechanics

    (f) Chapter 8 - Newtonian Dynamics

3. Gindikin, *Tales of Mathematicians and Physicists.*

    (a) Chapter 2 - Two Tales of Galileo
        Chapter 3 - Christiaan Huygens and Pendulum Clocks

    (b) Chapter 6 - The Beginnings of Higher Geometry
        Chapter 7 - Leonhard Euler

    (c) Chapter 8 - Joseph Louis Lagrange
        Chapter 9 - Pierre-Simon Laplace

    (d) Chapter 10 - Prince of Mathematicians [i.e. Gauss]

Stanford Encyclopedia of Philosophy Articles:

1. "Continuity and Infinitesimals"
   https://plato.stanford.edu/archives/sum2017/entries/continuity/

2. "Change and Inconsistency"
   https://plato.stanford.edu/archives/win2016/entries/change/

3. "René Descartes"
   http://plato.stanford.edu/archives/sum2016/entries/descartes/

4. "Descartes' Physics"
   http://plato.stanford.edu/archives/sum2014/entries/descartes-physics/

5. "Newton's Philosophy"
   https://plato.stanford.edu/archives/win2016/entries/newton-philosophy/

6. "Newton's *Philosophiae Naturalis Principia Mathematica*"
   http://plato.stanford.edu/archives/spr2009/entries/newton-principia/

7. "Leibniz's Philosophy of Physics"
   http://plato.stanford.edu/archives/spr2014/entries/leibniz-physics/