**HPS210F Scientific Revolutions I (fall term), 2020**

Instructor: Brian Baigrie, Rm. 318 Victoria College

Contact Details: [brian.baigrie@utoronto.ca](mailto:brian.baigrie@utoronto.ca)

Office Hours: By appointment (through Zoom or Skype)

Course Web Site: [www.tophat.com](http://www.tophat.com)

**Description**

This course will look at science in the western tradition through an examination of a few of its most revolutionary achievements. This is not a science course but rather an examination of the richness and diversity of scientific practice from an historical and philosophical perspective. It is designed both for students in arts and the sciences. The guiding principle is breadth: the course will help science students to discern the historical character and richer cultural signific­ance of scientific practices and ideas, while at the same time help the humanities student to see that scientific ideas and practices have made vital contributions to our cultural identities and practices.

HPS210F will be delivered online (SYNC). Lectures will be lived streamed on the Top Hat platform at the scheduled class time, Mondays 12 to 1 pm .

Detailed power points and audio files (recorded lectures) will be made available on Top Hat (the platform for HPS210).

**Required Readings**

Baigrie, Brian. 2014. *The Making of Modern Science*, *Volume 1*. Contains lecture notes for all classes, chronology for events, and an index of names and terms used in the lectures. Available for purchase through Top Hat ([www.tophat.com](http://www.tophat.com)).

**Grading**

Assignments and their respective weights are as follows:

Mid-Term Exam. Date: Oct. 26 25%

Lit. Review Due date: Nov. 16 20%

Participation grade (through TopHat) 20%

Final Exam. Date: TBA 35%

**Course Delivery**

HPS210 will be using the Top Hat ([www.tophat.com](http://www.tophat.com/)) classroom response system in class.  This platform will give you access to all course material (power point slides with embedded audio lectures, textbook, supplementary readings) and give you the opportunity to participate in class by submitting answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text.  The participation grade is set at 20% of the final mark for this course.

Top Hat will require a subscription.  To register for a Top Hat account, please visit: <https://app.tophat.com/register/>

You will then need to register for this course. The course number is 077248.

An email invitation will also be sent to your utoronto email account.

You will also be given the opportunity to purchase the digital version of the course textbook -- *The Marking of Modern Science., Part I* – for $50. You need to proceed to checkout in order to receive this price for the course textbook.

There are no additional costs for this course. All course material will be made available to you through the Top Hat course page.

**Weekly Schedule for HPS210**

Sept. 14 (1) Introduction and course objectives

(2) Aristotle's two-sphere cosmology

Reading: Baigrie, *Making of Modern Science,* chapter 1.

<http://simplyphilosophy.org/philosophy/classical-greek-philosophy/aristotle/the-four-causes/>

Sept. 21 (3) Aristotle’s four causes

(4) Science in Alexandria

(5) The Ptolemaic system

Readings: Baigrie, Making of Modern Science, chapter 2.

<https://www.loc.gov/collections/finding-our-place-in-the-cosmos-with-carl-sagan/articles-and-essays/modeling-the-cosmos/ancient-greek-astronomy-and-cosmology>

Sept. 28 (6) The Copernican system

Readings: Baigrie, *Making of Modern Science*, chapter 3.

Oct. 5 (7) The Tychonic system

(8) Kepler: physical causes and laws of motion

Reading: Baigrie, *Making of Modern Science*, chapters 4 and 5.

Oct 12 No Class: Thanksgiving

Oct. 19 (9) Galileo and the telescope

(10 Galileo and the creation of inertial physics

Reading: Baigrie, *Making of Modern Science*, chapter 6. Baigrie, “Galileo’s Lunar Landscapes” (Top Hat)

(11) The Emergence of the Scientific Community

Oct 26 **Mid-Term Exam: Note that the mid-term will be available through Quercus at 11 am. The window will close at 11:59 pm. Once the exam is accessed, you will have 60 minutes to complete it.**

Nov. 2 (12) Kepler and the Camera obscura

(13) William Harvey and the circulation of the blood

Reading: Baigrie, *Making of Modern Science*, chapter 7

(14) Descartes’ Mechanical Cosmology

Readings: Baigrie, *Making of Modern Science*, Chapter 8

(15) Francis Bacon and the Experimental Life

Reading: Baigrie, *Making of Modern Science*, chapter 9

Nov. 9 **Reading Week: No Classes**

Nov. 16 (16) Debates about animal generation

Reading: Lens on Leeuwenhoek: <https://www.youtube.com/watch?v=_D5Gu_9hEus>

**Literature Review Due (digital copy submitted as an email attachment to** [brian.baigrie@utoronto.ca](mailto:brian.baigrie@utoronto.ca) **by 5 pm. Penalty for lateness 5%/day)**

Nov. 23 (17) Newtonian science

<https://www.khanacademy.org/partner-content/mit-k12/mit-k12-science/mit-k12-physics/v/newtons-prism-experiment>

Nov. 30 (18) Newton and his critics

Reading: Baigrie, *Making of Modern Science*, chapter 10

(18) From Newton to the Enlightenment

**Final Exam: TBA**