HISTORY AND PHILOSOPHY OF SCIENCE PHIL3350-001 Spring 2021

Instructor: Stephen M. Downes
Email: s.downes@utah.edu
TA: TJ Perkins
Email: TBA

IVC class via Zoom T/Th 12:25pm to 1:45pm (First class meeting Jan 19th 2021.)

A full syllabus and schedule of class topics and exam dates will be available at the beginning of Spring semester. The following details what to expect from this course. (This document has three pages, please read all three carefully.)

Catalogue Description

Theories about the aims and methods of science and discussion of the historical development of science. Examples from history of science illustrate different views about science. Topics may include the relations between the sciences and between science and religion.

Course Description

This course introduces students to issues in the philosophy of science and exposes students to the history of science via a selection of readings from scientists’ original works. The philosophy of science is an exploration of the methods and aims of scientific inquiry. Several of the most important approaches to philosophy of science in the last hundred years will be discussed during the semester. We will discuss issues such as the justification of scientific knowledge claims, the problem of induction, relativism and scientific progress. Our readings in the history of science come from several periods: the Scientific Revolution (late 1500s to 1700), the nineteenth century and the twentieth century (history of genetics). Examining the history of science provides material to test the general claims that philosophers make about the aims and methods of science. We will consider whether these aims and methods have changed throughout history. The course material will be accessible to non-scientists and scientific examples will be introduced in non-technical vocabulary. However, students will learn some technical vocabulary in class, such as the logic of hypothesis testing.

Here are some scientific and philosophical figures whose contributions will be discussed: Aristotle, Copernicus, Galileo, Descartes, Newton, Paley, Darwin, Mendel, Marie Curie, Rosalind Franklin, Barbara McClintock, Helen Longino, Sean Valles, Dana Tulodziecki, Maria Kronfeldner and Joyce Havstad (University of Utah).

We will consider developments in the following sciences: astronomy, biology, chemistry, population health sciences and physics. We will also consider the interaction between science and values such as the impact of societal norms on scientific practice.
Books and Course Materials


All other course readings will be provided via the course Canvas page or Marriott Library Reserve desk.

The course Canvas page is where you will find the complete syllabus, reading assignments, quizzes and where you will hand in all your written assignments. You can also track how you are doing in the class via the Canvas page.

You will be required to register your mobile phone (or tablet or laptop) as a Turning Technologies response device. There will be in class quizzes and you will need this device to participate. You will have to purchase a license for your response device. Full instructions for setting up your response device will be provided on the class Canvas page.

Course Objectives.

Students in this class will learn some recent philosophy of science and learn how various philosophical methods apply to cases in the history of science. Students will also learn the beginnings of some technical methods in philosophy including basic deductive logic and basic probability theory.

Teaching and Learning Methods.

Classes will all be conducted via Zoom and will have both a lecture format and a discussion format. Students should come to class having read the assigned readings and be prepared to answer questions (via a response device) on these readings and class materials. A variety of assignments will be required for this class including short papers (on to two pages), longer papers (three to five pages), in class quizzes and online quizzes.

Course Requirements

Class attendance is required and you should be prepared to participate by using your response device in class. You should read all the required readings before the relevant class period. Read any supplementary readings to help further your understanding or to prepare for writing papers.

You will be required to submit between 3 and 5 longer papers and six short papers. All paper topics will be assigned in advance and will be accessible via the class Canvas page. All papers will be designed to examine material from the lectures and the readings for this class. The short papers will vary in style and include responses to passages from historical or more recent philosophical texts and “formal” assignments, in which you have to use geometry, elementary deductive logic or probability theory or a combination of all three. There will be a short paper assignment due at the end of the first week of class so that you can learn how to use the Canvas submission system and so we can have a sample of your writing.
I do not accept any late assignments. This requirement is negotiable only under circumstances of illness or injury that are brought to my attention before the assignment is due. If an assignment is not handed in by the due date it will receive a failing grade. Lowest scores in each assignment group (long papers, short papers etc.) will be dropped. In addition, there will be ample opportunity for extra credit and bonus points. For example, students with a 100% attendance record for the semester will receive bonus points. Students experiencing long term illness (more than a week) should bring this to the attention of the instructor and we will assess whether the student can successfully complete the class.

Detailed instructions on what is expected in all papers and quizzes will be announced in class and appear on the class Canvas page which will go live on the first day of class.

**GRADING POLICY**

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<thead>
<tr>
<th>Final grades are assessed as follows:</th>
<th>% Points translate to grades as follows:</th>
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<tbody>
<tr>
<td>Attendance/participation 20</td>
<td>93% and above = A</td>
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<tr>
<td>Online Quizzes 20</td>
<td>90-92 % = A-</td>
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<tr>
<td>Short papers 30</td>
<td>88-89 % = B+</td>
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<tr>
<td>Longer papers 30</td>
<td>83-87 % = B</td>
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<tr>
<td>Total 100</td>
<td>80-82 % = B-</td>
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<tr>
<td></td>
<td>78-79 % = C+</td>
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<td>73-77 % = C</td>
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<td>70-72 % = C-</td>
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<td>Below 60 % = E</td>
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(Assignment group weightings are subject to change as class progresses.)

In previous versions of this class grades from A to E have been handed out. Students who complete and hand in all papers, complete all quizzes and attend, and participate in, at least 85% of class sessions will pass this class. Failing grades usually result from failure to complete paper assignments, failure to take quizzes, poor attendance or all of the above.

A note on IVC classes: IVC classes take place at the assigned class time via Zoom. In this instructor’s IVC classes, attendance is taken. Students are asked to have their video turned off during class time. Students are welcome to join in class discussion via video but are also welcome to join discussion only via audio. Students are encouraged to enter questions or comments into Zoom chat but please use this channel only for class relevant discussion. All private chat between students during class is revealed when the chat thread is recorded at the end of class. All instructor office hours will also be held via Zoom.