

PHIL 221: Introduction to Philosophy of Science

Fall 2024, Purdue University

ABBREVIATED SYLLABUS

Time:	T/Th 3pm-4:15pm
Professor:	Dr. D. Tulodziecki (she/her/hers) (tulodziecki@purdue.edu)

Course description:

An introduction to the scope and methods of science and to theories of its historical development. Topics may include scientific revolutions, theories of scientific method, the nature of scientific discovery, explanation, and the role of values in scientific change.

Textbook:

We will work through **Perusall** this semester. Perusall is a collaborative social learning platform designed to increase engagement, in our case focused specifically on the readings.

Engaged reading assignments will happen through Perusall (for more, see below), and this means that **the textbook needs to be purchased through Perusall**, too. The book will be available to you for free for the first two weeks of the course. To purchase the textbook:

- (1) Click on one of the Perusall assignment links in Brightspace. You'll be automatically taken to the Perusall course homepage. **To avoid synching problems with Brightspace, please go to Perusall ONLY via Brightspace.**
- (2) Once you click on an assignment link, you'll be prompted to purchase the textbook ("**Recipes for Science: An Introduction to Scientific Methods and Reasoning, 2nd edition**", by Potochnik et al.) Please note that you'll need the **second edition**.
- (3) You'll see various purchasing options; the cheapest is \$27.48. Select your option, and purchase the book.

We will use this textbook almost every week throughout the entire course, so it's essential you obtain a copy as soon as possible. If you face any obstacles purchasing the book, please let me know as soon as possible, so we can arrange an alternative solution.

Here's a link about how to get started with Perusall (including a couple of videos): <https://tinyurl.com/48ppf76j>

Grading:

Your final grade will be based on the following:

- **Attendance and Course Participation (5%):** Attendance is mandatory. You may miss three classes (unexcused) without penalty. If you miss more classes than that without a spectacularly good reason, this might affect your grade. If you have to miss a class, notify me in advance (the sooner, the better). In addition, it is your responsibility, for any missed class, to obtain notes about the material covered/any other relevant information from another student in the class. Failure to do so, undocumented repeated absences, etc. will not count as an excuse for anything. Here's a link to the official Purdue attendance policy: <https://www.purdue.edu/advocacy/students/absences.html>. 'Course participation' is understood broadly and applies to any aspects of the course that involve participation.

- **Engaged Reading Assignments (25%):** You are required to do the reading specified for a given class **before the class begins**. In this class, we will practice active and engaged reading, and our platform to do this will be *Perusall* (accessible via Brightspace). For each class assignment, you will be required to post a minimum of four comments on Perusall (three lowest assignment scores dropped at end of semester). The quality of your comments will be graded; for examples, see the first Perusall assignment. The deadline for each assignment is 3pm Eastern on class day. The number of assignments might change due to unforeseen circumstances (for example, if we have to cancel class due to a storm, I might upload a video for points), but the total contribution of this category to your final grade will remain at 25%.
- **Exams(25% each):** There will be two non-cumulative exams.
- **Box Project (20%):** This project is a group project whose sole purpose is to answer the question “What’s in the box?” (for a box that will be made available to you). The project has only one rule: “Don’t open the box”. Groups will collaborate/compete to answer this question, culminating in end-of-semester presentations. Further details will be made available when the time is right.

The grade scale is as follows and is in percent: 100-97 *A+*, 96-93 *A*, 92-89 *A-*, 88-85 *B+*, 84-81 *B*, 80-77 *B-*, 76-73 *C+*, 72-69 *C*, 68-65 *C-*, 64-61 *D+*, 60-57 *D*, 56-53 *D-*, 52 and below: *F*

Academic integrity:

Suspected academic dishonesty of any kind will be reported to the Dean of Students, may result in an *F* in the class, suspension, being expelled, and other penalties. Note that this also goes for your Perusall comments: for example, posting comments as your own that are copied from the text, from external websites, or of which you are not the original author, will be treated as every other type of academic misconduct (at a minimum, it will result in an overall Perusall score of zero for the semester).

Use of any generative AI for any part of the class (especially assignments) is strictly forbidden, unless I explicitly say otherwise. I have no objection to you getting creative ideas from generative AI about the box project, but using it to compose any written work for this class is **not** allowed. If you do use generative AI when it is explicitly allowed, you **must acknowledge** that you did so and explain exactly how you used it (keep a record of the prompts, too).

It is your responsibility to know what does and does not fall under academic dishonesty. If in doubt about whether a certain course of action violates academic integrity, please consult me before proceeding.

Schedule:

The schedule below, including the assignment due dates, is **tentative and subject to revision** at the instructor’s whim. We will aim to stick to it as closely as possible but will diverge from it as necessary. Changes to the schedule/readings/HWs/etc. will be announced in class. It is your responsibility to be aware of those changes. I might also announce such changes through email. It is your responsibility to check your Purdue email once every 24 hours. The assignments are due on the date they line up with.

The section numbers in the assigned reading column refer to the sections in our textbook, *Recipes for Science, 2nd edition*. Please make sure you do the reading *before class*. ‘ER’ stands for ‘Engaged Reading’.

Date	Topic	Read before class	Due before class
<i>Week 1</i> 08.20	Syllabus; Introductions		
08.22	What is science good for?	Textbook Intro (pp. 1–4)	<i>ER: Intro</i>
<i>Week 2</i> 08.27	The nature of science	§1.1, 1.2	<i>ER: 1.1, 1.2</i>
08.29	The nature of science	§1.3, 1.4	<i>ER: 1.3, 1.4</i>
<i>Week 3</i> 09.03	Box Project	Box Handouts	
09.05	Science and its aims	§2.1, 2.2	<i>ER: 2.1, 2.2</i>
<i>Week 4</i> 09.10	Science and its aims	§2.3, 2.4	<i>ER: 2.3, 2.4; Box Links</i>
09.12	Experiments I	§3.1, 3.2	<i>ER: 3.1, 3.2</i>
<i>Week 5</i> 09.17	Experiments II	§3.3, 3.4	<i>ER: 3.3, 3.4</i>
09.19	Non-experimental methods	§4.1-4.4	<i>ER: 4.1, 4.2</i>
<i>Week 6</i> 09.24	Scientific models I	§5.1, 5.2	<i>ER: Section 5.1, 5.2</i>
09.26	Scientific models II	§5.3, 5.4	<i>ER: 5.3, 5.4; Box Report 1</i>
<i>Week 7</i> 10.01	Review Session	Study Guide	
10.03	Exam 1	Chs. 1-5	In class
<i>Week 8</i> 10.08	October Break	No class	
10.10	Scientific reasoning	§6.1-6.2	<i>ER: 6.1, 6.2</i>
<i>Week 9</i> 10.15	Scientific reasoning	§6.3-7.1	<i>ER: 6.3, 6.4, 7.1</i>
10.17	Scientific reasoning	§7.2, 7.3, 7.4	<i>ER: 7.2, 7.3, 7.4</i>
<i>Week 10</i> 10.22	Probability	8.1-8.4	<i>ER: 8.1-8.4</i>
10.24	Causal Reasoning	11.1-11.3	<i>ER: 11.1-11.3; Box Report 2</i>
<i>Week 11</i> 10.29	Explanation	§12.1-12.2	<i>ER: 12.1, 12.2</i>
10.31	Theory-Change	§12.3-12.4	<i>ER: 12.3, 12.4</i>

Date	Topic	Read before class	Homework Due
<i>Week 12</i>			
11.05	Science and Society	13.1-13.2	<i>ER: 13.1, 13.2</i>
11.07	Science and Values	13.3-13.4	<i>ER: 13.2, 13.4</i>
<i>Week 13</i>			
11.12	Review Session	Study Guide	
11.14	Exam 2	Chs. 6-8, 11-13	In class
<i>Week 14</i>			
11.19	Catch-up/TBD		
11.21	Catch-up/TBD		
<i>Week 15</i>			
11.26	Box Project Work	Asynchronous Class	<i>Box Report 3, Draft slides</i>
11.28	Thanksgiving	No class	
<i>Week 16</i>	<i>Dead Week</i>		
12.03	Group Presentations		<i>Peer Rubrics</i>
12.05	Group Presentations		<i>Peer Rubrics</i>
<i>Exam week</i>			
12.10	Extra Credit	Video <i>Merchants of Doubt</i>	Write-up (1.5-2pp.)
12.TBA	No final		