

# PHIL 4160/5160: Philosophy of Science

Spring 2018 (Class #9878/9879), Wednesdays 3:05–6:05pm, Lindley Hall S227

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## BASIC INFORMATION

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*Instructor* Dr. Yoichi Ishida (pronounced “yo-EE-chee ee-SHEE-da”)  
 Email: [ishiday@ohio.edu](mailto:ishiday@ohio.edu)  
 Mailbox: Lindley Hall N152  
 Instructor website: [www.yoichiishida.com](http://www.yoichiishida.com)

*Office & Office Hours* Lindley Hall S223  
 Tuesdays and Thursdays 3–4pm and by appointment

*Website* Blackboard: <https://blackboard.ohio.edu>

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## COURSE DESCRIPTION

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*Topic of the Course* In this course, we will explore one of the most exciting and important periods in philosophy of science. In the 1960s and 70s, historians and historically minded philosophers of science developed compelling alternatives to logical positivism, which provided influential metaphysical and epistemological theories about science. We will begin by reading parts of Galileo’s *Dialogue on the Two Chief World Systems* as well as the logical positivist account of science. These readings provide a historical and philosophical background to the major texts we will study: Norwood Russell Hanson’s *Patterns of Discovery*, Thomas Kuhn’s *The Structure of Scientific Revolutions*, and Paul Feyerabend’s *Against Method*.

*Learning Outcomes* Upon completion of this course, the students will be able to:

1. Explain important theoretical and empirical problems and disputes regarding the course topic.
2. Explain major theories and models in the literature on the course topic.
3. Think critically about and discuss the problems as well as the proposed theories and models.

*Organization of the Seminar* The seminar will be organized as follows (The italicized items are the assignments described in more detail below): At the beginning of each class, we briefly review the previous week’s material. Then, one student gives a *seminar presentation* on the previous week’s reading and discussion. After that, I will give an informal lecture and discussion on the new readings for that week. All students are expected to make *contributions to the discussion*. After each seminar meeting, every student is to email me a *post-seminar reflection*. In addition, the undergraduate students will have *essays* and the *final exam*, and the

graduate students will have a *work-in-progress presentation* and a *term paper*.

*Prerequisites* 3 courses in philosophy

*Disclaimer* Although the learning outcomes are designed to be suitable for an upper-division undergraduate and a graduate course, students may still vary in their competency and performance levels on these learning outcomes. They can expect to achieve these outcomes only if they honor all course policies, attend and participate in classes regularly, and complete all assigned work in good faith and on time.

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## TEXTBOOKS

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All readings will be posted on Blackboard. You must bring your copies of a week's required readings to class.

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## ASSESSMENT OF STUDENT LEARNING

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The assignments listed below are required in this course and count toward your final grade as described in this section. Note that there are two different sets of assignments, one for undergraduate students and the other for graduate students.

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### ASSIGNMENTS (Undergraduate)

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*Seminar Presentations* Each student will give a 15-min seminar presentation on a rotating basis. A presentation will be on the previous week's reading and discussion. Your aim is not to summarize the previous week. Rather, your aim is to continue the discussion of a topic previously discussed, to raise a new point or question, and/or to suggest a criticism of an argument previously discussed.

*Contributions to Discussion* You are to contribute to the discussion in each seminar meeting by asking questions, answering others' questions, and/or making comments that are relevant to the topic at hand.

*Post-Seminar Reflections* After each seminar meeting, you will email me reflections on the reading and discussion of that week. At minimum, you should aim at composing one or two thoughtful paragraphs. You may of course write more if necessary. Your post-seminar reflections are due by the end of Saturday after each seminar. I will read late reflections too, but they will not count towards your grade.

Consider this to be a continuation of in-class discussion. For example, you can write questions and comments you had in class but did not have a chance to speak. You can also write ideas, comments, or questions that have come up after the seminar. This will be a good preparation for your seminar presentation if it is your turn next week.

*Essays* There will be two essays (1500–2000 words each) on the topics to be provided.

Both essays must be turned in to turnitin.com by the due dates.

*Final Exam* The final exam will be comprehensive. It is closed book and given on the date and time officially scheduled by the university.

**FINAL GRADE (Undergraduate)**

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In summary, the available points for the assignments are distributed as follows:

Assignments	Weight (%)
Seminar Presentations	10
Contribution to Discussion	10
Post-Seminar Reflections	20
Essays	40
Final Exam	20
<b>Total</b>	<b>100 %</b>

You will receive a final letter grade according to the following grading scale. Although not formalized in the table above, your improvements over the course of the semester and exceptionally good participation in class will count favorably toward your final grade.

Grade	Percentage	Grade	Percentage
A	93 or above	C	73–76
A–	90–92	C–	70–72
B+	87–89	D+	67–69
B	83–96	D	63–66
B–	80–82	D–	60–62
C+	77–79	F	59 or below

**ASSIGNMENTS (Graduate)**

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*Seminar Presentations* Each student will give a 15-min seminar presentation on a rotating basis. A presentation will be on the previous week’s reading and discussion. Your aim is not to summarize the previous week. Rather, your aim is to continue the discussion of a topic previously discussed, to raise a new point or question, and/or to suggest a criticism of an argument previously discussed.

*Contributions to Discussion* You are to contribute to the discussion in each seminar meeting by asking questions, answering others’ questions, and/or making comments that are relevant to the topic at hand.

*Post-Seminar Reflections* After each seminar meeting, you will email me reflections on the reading and discussion of that week. You should at least write two thoughtful paragraphs, and you may write more if necessary. Your post-seminar reflections are due by the end of Saturday after each seminar.

Consider this to be a continuation of in-class discussion. For example, you can

write questions and comments you had in class but did not have a chance to speak. You can also write any new ideas, comments, or questions that have come up after the seminar. This will be a good preparation for your seminar presentation if it is your turn next week as well as a chance to explore potential term paper topics.

*Work-in-Progress Presentations* Each student will present his or her work-in-progress term paper. You are expected to schedule a presentation by Week 11, and presentations start in Week 12. Your presentation should be about 20 minutes followed by a 30-min discussion.

If there is an important background reading (e.g., a paper you criticize), you can nominate it as an assigned reading for the week of your presentation. You must contact me at least a week in advance to make this arrangement.

This is a *work-in-progress* talk, so you don't have to be able to present your argument in full. Rather, you should describe as clearly as you can your paper's aim and scope as well as your working thesis and argument.

*Term Paper* A term paper (approx. 4000-5000 words) is due at the end of the term. By Week 8, each graduate student must see me to discuss potential paper topics. See the attached instructions.

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## FINAL GRADE ( Graduate )

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In summary, the available points for the assignments are distributed as follows:

Assignments	Weight (%)
Seminar Presentations	15
Contribution to Discussion	15
Post-Seminar Reflections	20
Work-in-Progress Presentation	10
Term Paper	40
<b>Total</b>	<b>100</b>

You will receive a final letter grade according to the grading scale given above for undergraduate students.

*You can expect to get an A only if you meet the course requirements and expectations in an exemplary manner and you demonstrate that you have attained the learning outcomes at a sophisticated level.*

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## COURSE POLICIES

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All students in this course are expected to comply with the following policies.

*Academic Integrity* Academic integrity and honesty are basic values of Ohio University. Students are expected to follow standards of academic integrity and honesty. Academic misconduct is a violation of the Ohio University Student Code of Conduct subject to a maximum sanction of disciplinary suspension or expulsion as well as a grade penalty in the course.

You are expected to be familiar with the information on academic integrity provided at <http://www.ohio.edu/communitystandards/academic/students.cfm>.

*Electronic Devices* You may use laptops to take notes during class, but you may not use any electronic devices, such as cellphones, tablets, and laptops, while you are doing graded assignments in class (e.g., exercises, exams).

*Turnitin* Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of Turnitin.com page service is subject to the Usage Policy and Privacy Pledge posted on the Turnitin.com site.

*Attendance* Attendance is required.

*Classroom Incivility* You are expected to behave in a civil manner, carefully listen to whoever is talking at a moment, and respect other people in class. I will not tolerate behaviors that are harmful to the learning of other students, such as disrupting other people's speech, mocking or insulting other people, and showing general disrespect and poor manners toward other people in class.

*Grade Disputes* If you believe that a grade on any specific assignment was in error, or unfair, you should resubmit that assignment, along with a brief cover note detailing those prima facie errors, or disagreement, together with appropriate evidence. The same procedure should be followed regarding the final grade. A request for re-grading or re-assessment is just that: the revised grade may increase, remain unchanged, or decrease. An explanation will be provided to the student in any case. Note that this policy does not apply to grade *calculation* errors, which should be brought to my attention right away.

*Late or Missed Assignments & Exams* *Essays:* A late essay will be accepted but penalized at the rate of 2 percentage points for each day (including weekends) the essay is late.

*Exams:* If you are scheduled for more than three final exams in one day, you may seek relief from the instructor with the examination scheduled *latest* in the day. For more on this procedure, see <https://www.ohio.edu/registrar/finals.cfm>.

*Seminar Presentations:* You are not to miss your presentation for any reason other than exceptional circumstances outlined below.

*Post-Seminar Reflections:* Your reflections on a seminar will not count towards

the grade if they are submitted more than 5 days after the seminar.

*Exceptional Circumstances:* The following are generally considered exceptional circumstances: a medical emergency, the death of a near relative, and a university-related trip (e.g., athletic team commitments). If you are in these circumstances, (i) obtain written documentation from a relevant authority (e.g., doctor, coach, etc.) verifying that you are/were in one of these circumstances, (ii) contact me as soon as you can to set up an appointment, and (iii) show me the documentation. I will then decide how to apply the policy on late or missed assignments and exams to your circumstance, and I will make, by mutual agreement, any necessary makeup assignments or other arrangements.

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## UNIVERSITY RESOURCES FOR LEARNING

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Your success in this course is important to me. I recognize that there are multiple ways to learn and that this multiplicity should be acknowledged in the structure of university courses and the evaluation of their participants. Thus, I encourage you to discuss your learning styles and comprehension requirements with me during my office hours or at another arranged time, if necessary. Every student is entitled to a meaningful and stimulating learning experience, and you are strongly encouraged to use the services provided by the Academic Advancement Center and the Student Writing Center. Disabled students are also strongly encouraged to use the services provided by Student Accessibility Services, including the provision of note-takers, transcribers, and sign-language interpreters.

*Student Accessibility Services* Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs and provide written documentation from Student Accessibility Services. If you are not yet registered as a student with a disability, please contact Student Accessibility Services at 740-593-2620 or visit the office in 348 Baker University Center.

*Academic Advancement Center* You can discuss any academic matters at the Academic Advancement Center, Alden Library 101, 740-593-2644 (<http://www.ohio.edu/aac/index.cfm>).

*Student Writing Center* Clear and well-organized writing is necessary for getting a good grade on the essays in this course. While you work on your essays, you should consider visiting the Student Writing Center in Alden Library (2nd floor), 740-593-2646. You can schedule an appointment online at <http://www.ohio.edu/writing/>.

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## COURSE SCHEDULE

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The following is a *tentative* schedule, which will be modified throughout the term to meet the students' interests and progress. *You are expected to have done the assigned reading before each class.*

Wk	Date	Topic	Readings
1	Jan 17	Introduction; Ptolemaic astronomy	<b>Ptolemy</b> , <i>Almagest</i> (selections); <b>Finocchiaro</b> , Introduction to Galileo's <i>Dialogue</i> (pp. 1–10, 20–38).
2	Jan 24	Galileo's <i>Dialogue</i>	<b>Galileo</b> , <i>Dialogue</i> , Preface (pp. 77–82), Second Day (pp. 117–155).
3	Jan 31	Galileo's <i>Dialogue</i>	<b>Galileo</b> , Second Day (pp. 155–170), Third Day (pp. 221–244), Fourth Day (pp. 303–308).
4	Feb 7	Orthodox views	<b>TBA</b>
5	Feb 14	Hanson	<b>Hanson</b> , <i>Patterns of Discovery</i> , Ch. 1–2.
6	Feb 21	Kuhn	<b>Kuhn</b> , <i>Structure</i> , Preface, Ch. I–IV.
7	Feb 28	Kuhn	<b>Kuhn</b> , Ch. V–VIII.
<i>Undergraduate: Essay 1 due by 11:59pm on March 3.</i>			
<i>Graduate: By week 7, the graduate students must discuss term paper topics with the instructor.</i>			
8	Mar 7	Kuhn	<b>Kuhn</b> , Ch. IX–X.
9	Mar 14	<i>Spring Break</i>	
10	Mar 21	Kuhn	<b>Kuhn</b> , Ch. XI–XIII.
11	Mar 28	Feyerabend	<b>Feyerabend</b> , <i>Against Method</i> , Introduction, Ch. 1–4
12	Apr 4	Feyerabend	<b>Feyerabend</b> , Ch. 5–7
13	Apr 11	Feyerabend	<b>Feyerabend</b> , Ch. 8–11
14	Apr 18	Feyerabend	<b>Feyerabend</b> , Ch. 12–15
15	Apr 25	Conclusion	<b>Feyerabend</b> , Ch. 19

*Undergraduate: Essay 2 due by 11:59pm on April 28.*

*Final Exam: Wednesday, May 2, 12:20–2:20pm. Graduate student term papers are due in class.*

This syllabus is subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better student learning. All materials associated with this class and developed by the instructor are copyrighted in the name of Yoichi Ishida on this date January 17, 2018.

**Term Paper (Graduate)**

**Topic:** By week 7, you should discuss your potential term paper topic with me.

**Length:** Your paper should be 4000–5000 words long, excluding footnotes and references.

**References:** Use a consistent in-text citation and reference style. Chicago is one of the standard styles in philosophy of science, and you can also follow a style of *Philosophy of Science* (<http://journal.philsci.org/formatting-guidelines>). Disregard the instructions for blinding.

**Other policies:** See the syllabus.

**Some Expectations/Suggestions:**

1. You should aim at making a modest but potentially important point, and argue for it thoroughly and cogently. But your paper need not advance a wholly original thesis, but it shouldn't just reiterate someone else's thesis or merely summarize various arguments offered in the relevant literature.
2. Your paper will be graded on quality as a philosophy paper: a good paper should be well-organized and written clearly, and present a cogent argument(s) for a potentially important thesis (or theses) in a manner that another philosopher who has *not* read the relevant literature can easily follow.
3. Related to (2), it's a good idea to consider a serious objection to your thesis or argument, and respond to it.
4. If you are going to criticize someone else's view, it's better to carefully develop one or two serious criticisms rather than sketch many. Choose what you think is the most serious criticism rather than list a whole bunch of criticisms, some of which may well be minor and detract the reader from important points.