

San José State University
Department of Philosophy
Philosophy 160, sec 01 – Philosophy of Science
Spring 2018

Instructor:	James Lindahl
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Email:	James.Lindahl@sjsu.edu
Office Hours:	MW 9:00-10:00, TR 1:30-2:30, F 8:30-9:15 or by appointment
Class Days/Time:	MW 10:30 – 11:45
Classroom:	MacQuarrie Hall 324
Prerequisites:	Completion of WST Upper division standing
GE/SJSU Studies Category:	Area: R

Course Description

Philosophy of Science is an investigation into the nature, purpose, and impact of scientific reasoning and theory. Much of what we believe to be true in modern culture is based on our understanding of science. But what do scientific theories really tell us? We will investigate the relationship between scientific theories and reality, the methods of science in connection to “objective” reality, and the role that science and scientific reasoning has on shaping our beliefs and values in the modern world.

During the first half of the semester, we will explore philosophical issues in the physical sciences. From gravity to evolution, we’ll explore the development of various theories, their justifications, and how it is that they ground our understanding of the world.

During the second half of the semester, we will investigate the nature and methods of the social sciences. Are there “laws” of social behavior? Do social theories function like physical theories? Do people operate according to describable criteria of rationality? Can we understand a society in anything like the way we understand a physical process?

We will finish by reflecting on the role that scientific reasoning (both physical and social) plays in shaping our values, the way we live, and the way we understand the meaning of life, the universe, and everything.

Required Texts/Readings

Godfrey-Smith, Peter – *Theory and Reality*, University of Chicago Press, 2003
isbn: 0-226-30063-3

Hollis, Martin – *The Philosophy of Social Science*, Cambridge University Press,
(revised) 2003, isbn: 0-521-44780-1

Faculty Web Page and MYSJSU Messaging

Copies of the course materials such as the syllabus, major assignment handouts, etc. may be found on the Canvas page for this course. Accept the invitation to join and you should have access to everything posted on the site for this class.

Course Goals and Student Learning Objectives

Philosophy 160 satisfies upper division G.E. area R. Objectives for this G.E. area include

1. Goals

Students will cultivate knowledge of the scientific study of the physical universe and its life forms. Students will understand and appreciate the interrelationship of science and human beings to each other.

2. Student Learning Objectives

Within the particular scientific content of the course, a student should be able to:

- Demonstrate an understanding of the methods and limits of scientific investigation;
- Distinguish science from pseudo-science; and
- Apply a scientific approach to answer questions about the earth and environment.

Grading information

Course Requirements:

You will be expected to write 2 essays. They will each be approximately 4-5 pages in length. Topics and guidelines will be handed out well before the due dates.

There will be reading assigned for each class. It is important to attend class and read the assigned material before class. On the tests, you will be responsible for information contained in the readings as well as in the class lectures.

Active participation is important. Students are encouraged to ask questions, contribute ideas, and engage in discussion of the course material. Each section will end with a discussion period during which all are expected to participate.

There will be 2 midterms and a final exam (short answer tests).

“Passage of the Writing Skills Test (WST) or ENGL/LLD 100A with a C or better (C- not accepted), and completion of Core General Education are prerequisite to all SJSU Studies courses. Completion of, or co-registration in, 100W is strongly recommended. A minimum aggregate GPA of 2.0 in GE Areas R, S, & V shall be required of all students.”

Course Grade Breakdown:

Essay #1 (Natural Science)	23%
Essay #2 (Social Science)	23%
Midterm #1	18%
Midterm #2	18%
Final Exam	18%

Grading Information:

All assignments will be graded out of 100 points. They will be weighted as indicated above. Final grades will be assigned according to the following grade schema:

93-100 = A, 90-92 = A-, 87-89 = B+, 83-86 = B, 80-82 = B-, 77-79 = C+,
73-76 = C, 70-72 = C-, 67-69 = D+, 63-66 = D, 60-62 = D-, 0-59 = F

Schedule of Assignments:

Midterm #1 – Wednesday, February 28
Essay #1, due Wednesday, March 8
Midterm #2 – Monday, April 9
Essay #2, due Wednesday, May 2
Final Exam – Monday, May 21, 9:45 AM

Assignments and Grading Policy

I will provide detailed instructions for all writing assignments on handouts distributed well before the due dates for each assignment. Assignments will be submitted to me, in person, at the end of the class on the day they are due.

Exams will be short-answer / written response tests. I will provide specific information before tests. I do not want any assignments submitted via e-mail. All assignments will be given to me on real paper in the real world in real time.

It is up to you to keep up on the schedule of assignments. There is a schedule of due-dates for all major assignments above. These are also listed in the reading schedule below. If you miss a handout announcing an upcoming assignment, this does not exonerate you of responsibility for that assignment. Watch the schedule. If you see an assignment soon due then you would be well-advised to ask me about it or consult the handout on my website to get instructions. Any assignments missing at the end of the semester will be graded “0.” Since I announce upcoming assignments in class, distribute handouts, post them on my web-site and list them in two places on this syllabus, “I didn’t know” is not an excuse for missing an assignment.

Never turn in the only copy of anything!!!! Always back up your work. Do not delete your work after it is submitted. I reserve the right to misplace an essay and request another copy. I will not accept excuses for lost assignments no matter who loses them. I know that hard disk crashes happen (especially for Windows users). I highly recommend that you save all work to a disc, back-up drive or flash drive and store it somewhere safe in the event that some mishap befalls your original copy. You can tell me stories about hard disc crashes or animals eating essays. They may be true (or not) and I may be amused (or not) but the verdict will always be “give me another copy” even if this requires you to write it again.

I do my best to return essays quickly and with substantial feedback. Given the recent increases in class size (as evidenced by this class), “quickly” may mean 2-3 weeks. I read essays carefully, correct grammar, and respond to content issues. That can take time.

I use a red pen to correct essays. I have been told that this practice is now frowned upon because red ink makes the comments appear critical if not angry. I do not believe it does either. Red stands out against black print. The comments stand out against the page better if they are red. It means neither that I am being critical nor that I am angry. I like red pens.

Occasionally an essay might be returned with torn or tattered edges. This does not correlate to my feelings about the essay in any way. I have a cat that tears the edges off of paper. If your essay is torn around the edges it only means that your essay was on top of the stack when this cat decided she was not getting enough attention.

Keep all of your returned work for the entire semester.

I reserve the right to mis-enter a grade on my spreadsheet and request that you resubmit returned work to verify the correct grade. Keep everything until you see your grade at the end of the semester. Once the semester is over you may then dispose of all work in whatever bizarre (but safe) ritualistic fashion you choose or keep it carefully preserved as part of your eternal legacy.

Your final grade will be calculated according to your scores on all assignments weighted as described in the grading section of this syllabus. Missed assignment will dramatically reduce your grade. My computer does the math and generates a grade based on the numbers without considering other factors. I stand by its decision.

Office hours are listed both on this syllabus and on the main page of my website. This schedule is good for the entire semester up to the last day of instruction. I will have office hours during finals but they may be different than those listed.

Late or Missed Assignments:

If you need to miss a deadline, inform me as soon as you are aware of it. I will accommodate some (but not all) late work. Late writing assignments will be penalized 5% per week unless I have given permission for the late submission. Do not miss the tests. It is very difficult to schedule make-ups and none will be offered once a test is returned to the class. Any missing work at the end of the semester will be assigned the score of 0. Do the math; this can do substantial damage to your grade and/or result in failing the class even if you do well enough on other assignments.

[University policy F69-24](http://www.sjsu.edu/senate/docs/F69-24.pdf) at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states, “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”

Note that “All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades.” See [University Policy F13-1](http://www.sjsu.edu/senate/docs/F13-1.pdf) at <http://www.sjsu.edu/senate/docs/F13-1.pdf> for more details.

Extra Credit

There will be no extra credit assignments in this class. Do well on the scheduled assignments.

Workload:

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

Classroom Protocol

Note on your electronic devices:

Cell phones (smart or otherwise) are taken by yours truly as one of the plagues of the 21st century. While you may choose to remain leashed to everyone you know, chatter, text-message, or twitter incessantly about nothing while life passes you by, use hollow communication as a substitute for your own thoughts, inhibit the elegant flow of life as you blindly stand in every one else's way oblivious to your surroundings, and continually interrupt the few remaining contexts of silence and/or beauty in the world, you will please render them inoperative during class.

You may, of course, use a laptop to participate in class-related activities and take notes but you should refrain from text-messaging, checking e-mail, playing games, updating facebook, and unrelated net-surfing.

Smart Phones as well as cell-phones that are not so smart **MUST** be put completely away during tests. There shall be no phones out on desks or on laps or even sitting out on top of backpacks during tests. All must be off and completely out of sight. There shall be no earbuds in ears during tests. Any use of a phone or a computer during a test will result in an automatic failure on that test. If you are caught using any communication device during a test, the test will be taken away and you will receive a score of "0" on that test. No make-up opportunities will be offered. No exceptions.

In addition to smart phones, there will be no permitted use of **smart wrist mounted devices** (formerly "watches") nor the wearing of any **google glasses** during class.

A word on e-mails:

I am not one of those who spends hours per day in front of the computer. I am happy to respond to e-mails that require short and to-the-point responses. Do not e-mail requests for me to explain complex concepts or repeat lectures that you may have missed. If I cannot respond in a paragraph, I probably will not respond.

Some things you should know about e-mail:

E-mail is not always reliable. Never send an e-mail to me concerning an urgent or important matter and assume that it has been read by me and resolved. There are many reasons why an e-mail may not make it to me:

I may have (temporary) problems with my server or e-mail account.

You may have (temporary) problems with your server or e-mail account.

You may select a heading that looks to me like spam which I delete without reading.

Your e-mail might be erroneously identified as spam by my filter and sent straight to the trash bin.

Your message may make it into my inbox on a day when I do not get to all of my e-mails. It might then drift down in the e-mail inbox only to be noticed again four months later.

I may be having one of my anti-technology episodes, refuse to turn on my computer for a week and instead spend that time at the beach with my wife and dog.

Some of these problems are a feature of the technology, some of them are issues I have. Nothing can be done about either. If whatever you need to communicate to me is of great importance, choose a great medium (like vocal conversation) to convey it. E-mail is just not that trustworthy.

A recent study has shown that there are over 210 billion e-mails sent per day around the world. Think about that. There are only 7 billion people on the planet. A significant percentage of those are babies in third-world countries who lack the technology to send or receive e-mails. That is not even counting text messages and tweets. Do the math. There are simply too many e-mails. Finally, I do not receive text messages. I have never sent nor received a text message (unless as an email). I have no text messaging device and do not intend on purchasing such a device.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at <http://www.sjsu.edu/studentconduct/>.

Cheating on a test will result in the assignment of a score of zero on the test. Consulting any notes, paper or electronic, during a test is considered cheating. There will be no use of smart phones during a test for any reason. No smart phones should be visible during a test. All phones should be turned off and put away. Using a smart phone, for any reason, during a test will be considered cheating.

Plagiarism is an egregious form of academic dishonesty. If I discover any essay or research paper is plagiarized, I will assign a score of zero for that assignment. There will be no opportunity for making up that assignment. Downloading or copying any content from websites, texts, or previously submitted papers, even partial copying, is considered plagiarism.

In both cases, I will, without exception, file a report with the office of Student Conduct. It will be up to them to decide if any further action is necessary.

The semester ends when the semester ends:

The day of the final exam is the last day of the course. When you walk out of the room, it is done. There is no further opportunity for submitting late work, making up work, revising work, or seeking reevaluations of old work. It is over; count it. Once the test is over, I leave campus, crawl

into a small cave with only a box of granola bars and a carton of soy milk, and methodically correct all finals and remaining essays. I do not take any communication devices with me and will not be accessing email. Once I am done correcting everything, I calculate and submit grades. The grade submission deadline for faculty follows the last day of finals by only a couple of days. Grade rosters can only be submitted as a complete class. In other words, it is not possible to submit one student's grade without all of the others nor is it possible to hold up one student's grade without holding up all grades. I will not delay the grades for an entire class to accommodate anyone's desire to submit late work.

The new University policy on incompletes:

The days where you might miss some major assignments during the semester and work out a deal to get an incomplete and finish it later are over. In days of olde, it was not uncommon for students to arrange to finish work long after the semester ended by taking an incomplete instead of a letter grade. The University is cracking down on this practice. It is no longer possible to do this without a formal petition to the Dean's office in which I explain that the missing work was my fault. It is, of course, never my fault. So, know this from the beginning: You must complete all work on schedule and have everything submitted to me before the final exam period. Anything missing will be counted as a "0" on the gradesheet and there will be no opportunity to submit it after the grades are in.

You should know what assignments are made and when they are due. Everything is listed on the greensheet. If you think you have missed a handout, ask me. You can also check the website. You can also ask me at any time to look over the spreadsheet to see if you are missing anything. The semester ends when the semester ends. The numbers, in the end, cannot be changed with negotiations or tears. Be warned in advance.

Life, School, and the tragedies that occasionally befall everyone:

Sometimes, bad things happen to good people. At some point during your college career, it is likely that life will impose difficulties upon you. Difficulties can interfere with your ability to study and generate the work necessary to do well in this class (as well as your others). You may be ill or someone near you may be ill; Someone close to you might pass away; financial hardships could force you to work long hours at a paying job.

If you find yourself in a situation that is likely to undermine your success in this class, speak to me about it. You don't need to reveal any personal details that you do not wish to but you should keep me informed about your difficulties completing assignments and preparing for tests. During the course of the semester, there are many ways for us to deal with these difficulties and I will work with you to help you complete the class whether it be now or during a future semester. The thing you do not want to do is struggle quietly, do poorly in the class (or fail) and then come to me during finals or after the grades have been submitted and inquire what can be done then. Nothing can be done once the semester is over. I am capable of human compassion and will do what I can to accommodate your needs as you deal with what life rains upon you. Just come to me when I can accommodate you and not after the semester is over.

If you have any needs not described in the preceding or any issues that arise that interfere with your ability fulfill the requirements of this class, please speak to me as soon as possible. It is easier to accommodate your needs and solve problems when I have ample notice rather than trying to address such issues at the last minute.

Philosophy 160 - Philosophy of Science Spring 2018, Course Schedule

Reading should be done before the class meeting for which it is scheduled. “TR” = *Theory and Reality*, “PSS” = *The Philosophy of Social Science*. The reading schedule is subject to change with advanced notice.

Week	Date	Topics, Readings, Assignments, Deadlines
1	Wed Jan. 24	Syllabus and Introduction
2	Mon/Wed Jan. 29,31	Read: TR Ch 1, pp.1-18 Topics: What is Science and what are the goals of scientific investigation? What is a theory? How does science shape our understanding of reality? The Scientific Revolution
3	Mon/Wed Feb. 5,7	Read: TR Ch 2 (sec 2.3 & 2.4), pp. 25-33 TR Ch 3 (sec 3.1-3.3), pp. 39-50 Topics: Empiricism/Positivism and the problem with words. Induction and deduction and various degrees of certainty in theory confirmation
4	Mon/Wed Feb. 12,14	Read: TR Ch 4, pp. 57-74 Topics: Karl Popper and the confirmation of theory. Science vs. Pseudo-science
5	Mon/Wed Feb. 19,21	Read: TR Ch 5, pp. 75-86, Ch6, pp.87-101 Topics: Thomas Kuhn, Scientific paradigms and Scientific Revolutions.

Week	Date	Topics, Readings, Assignments, Deadlines
6	Mon/Wed Fe. 26/28	<p>(For Monday) Read: TR Ch 8, pp.122-135</p> <p>Topics: Relativism and the Social dimension of Science</p> <p>MIDTERM EXAM #1: Wednesday, Feb. 28</p>
7	Mon/Wed March 5,7	<p>Read: TR Ch 9 (sec9.1-9.4), pp.136-144, Ch 10, pp. 149-162</p> <p>Topics: Feminist science studies and the political dimension of science, Naturalism, theory-ladenness of observation</p> <p>ESSAY #1: due Wednesday, March 7</p>
8	Mon/Wed March 12,14	<p>Read: TR and Ch 12, pp. 173-186, Ch 14 (sec.14.1-14.3) pp. 202-208</p> <p>Topics: Scientific Realism, Probability theory</p>
9	Mon/Wed March 19,21	<p>Read: TR Ch 13, pp. 190-201, PSS Ch 1, pp.1-20</p> <p>Topics: Scientific Explanation. So, what does all of this mean for Science? Introduction to the Social Sciences</p>
	March 26 – 30	Spring Break – March 26 - 30
10	Mon/Wed April 2,4	<p>Read: PSS Ch 1, (continue) pp.1-20 PSS Ch6 (partial), pp.116-126</p> <p>Topics: Understanding society: Marx and Mill, Explanatory strategies- top-down and bottom-up, Explanation vs. Understanding Rational decision making, the Prisoner’s dilemma.</p> <p>Note: Chapters 2-4 of PSS focus on material that we covered in <i>Theory and Reality</i>. This includes long sections on Popper, Quine, and Kuhn. Since the treatment is similar, we will not read these chapters for class, but if you are interested in reviewing this material, these chapters are very good.</p>

Week	Date	Topics, Readings, Assignments, Deadlines
11	Mon/Wed April 9,11	MIDTERM EXAM #2: Monday, April 9 Wednesday - Read: PSS Ch 5, pp.94-114 Topics: Functional explanation in social science, Durkheim, and Holism in Social explanation
12	Mon/Wed April 16,18	Read: Continue Ch 5, PSS Ch 7, pp.142-162 Topics: Ascribing meaning to social action according to Weber and Wittgenstein
13	Mon/Wed April 23,25	Read: Continue Ch 7, PSS, Ch 11, pp.224-247 Topics: The problem of explaining other cultures and the “rationality and relativism debates”
14	Mon/Wed April 30, May 2	Read: Continue Ch 11 ESSAY #2: due Wednesday, May 2
15	Mon/Wed May 7,9	Read: PSS Ch 8 (partial) pp.163-176 PSS Ch 9 (partial) pp. 192-201 Topics: Mixing Explanation with Understanding Self, roles and societal norms Summary – Explanation and Theory in the Social and Physical Sciences
16	Mon. May 14	Read: TR Ch 15 (partial) pp.221-225 PSS Ch 12 (partial) pp.253-260 Topics: Summary – Explanation and Theory in the Social and Physical Sciences
Final Exam	Mon. May 21	Final Exam – Monday, May 21: 9:45 AM - 12:00

Grades are posted on mysjsu.edu on Saturday, May 26 (or a couple of days later)
You can learn your grade on the final exam by sending me an e-mail request 3 or 4 days after the final exam.