

California State University Sacramento
Fall 2016

SCIENCE

AND

HUMAN VALUES

PHIL – 105.01

Instructor: Dr. Saray Ayala-López
Email: ayala@csus.edu
Office location: Mendocino Hall 3018
Preferred gender pronouns:
she/they, her/them, hers/theirs

Office hours:
Tuesday, Wednesday & Thursday 12-1:00pm
and by appointment.
Course meets:
Monday, Wednesday & Friday- 10-10:50am
Location: Douglas Hall 208

Catalog Description:

Examination of the values implicit in a scientific culture and the problems that arise as a commitment to the development of scientific knowledge and technology. These problems include: distinguishing good scientific practice from bad; the intrinsic value of scientific knowledge independent of its benefits in application; the proper and improper applications of scientific knowledge.

Course Description:

This course examines the relationship between science and values. In order to properly assess the role of values in science, we start by exploring what science is and how it works. By examining notions like observation, correlation, causation, theory, explanation, measurement, categorization, instrumentalism and reductionism, we will get a better sense of some of the complexities in the scientific process that keep philosophers of science busy. Equipped with these notions, we will be able to spot different stages in scientific research where values might play a role. We will apply these considerations to different branches of science (e.g. Neuroscience, Evolutionary Biology, Psychology, Sociology) and to debates on technology, environment, risk, sports and medicine. Both the conceptual analyses and the practical applications will reveal that values often operate in covert ways in scientific research, and that there are different kinds of values that are relevant (e.g. epistemic, moral). We will pay special attention to cases in which morally problematic social values (e.g. sexist, racist, heteronormative, ableist) shape the direction of scientific investigation and its results. Units: 3.0.

GE Area and Prerequisites:

This course satisfies GE area D (see the outcomes below). It is a writing intensive class, which requires students to write a minimum of 5,000 words of structured prose. You must have GWAR certification before Fall 2009; or WPJ score of 80 or above; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W + co-enrollment in ENGL 109X; or WPJ score 70/71 + co-enrollment in ENGL 109X.

Course objectives

We will cover the following questions:

1. Does science consist of passive observation and statement of facts?
2. Are scientific theories true descriptions of different parts of the world, or are they rather useful frameworks to make correct predictions and navigate the world, independently of their truth value?
3. Does correlation between events indicate that there is a causal relation?
4. How do scientists categorize and measure aspects of the world?
5. Should science aim for giving a description of reality that is value-free, or do moral and political considerations play an important role that should be openly acknowledged?
6. At what stage(s) in the scientific process do values enter into the picture?
7. Which kinds of values should/should not be part of scientific research?
8. How has sexist, racist, heteronormative and ableist ideology shaped the direction of scientific research?
9. Can we (scientifically) assess the risks we are exposed to (e.g. environmental and health risks) in a value-free way?
10. Can technology be racist, sexist, heteronormative and ableist?
11. Can we generalize science done in Western countries to other parts of the world?
12. What values guide medical science in determining what sex is, and how a sexed human body should be?
13. What is to be healthy and function *normally*? How do we define "normal"?
14. Is the scientific community diverse and inclusive? Why is that important?
15. Is the search for knowledge always justified? How do we determine its limits?
16. Is science's goal the control of nature?
17. Why is there so much skepticism and paralysis in relation to anthropogenic climate change?
18. How are politics and power related to science?

Course outcomes:

As per the GE area D and writing intensive requirements, students will be able to:

1. Describe and evaluate ethical and social values in their historical and cultural contexts.
2. Explain and apply the principles and methods of academic disciplines to the study of social and individual behavior.

3. Demonstrate an understanding of the role of human diversity in human society, for example, race, ethnicity, class, age, ability/ disability, sexual identity, gender and gender expression.
4. Explain and critically examine social dynamics and issues in their historical and cultural contexts.
5. Structure logical arguments, write well-formed sentences, and write prose that clearly demonstrates a sustained logical argument.

Here is a link to the GE area D learning outcomes: <http://www.csus.edu/phil/Guidance/Philosophy%20GE.pdf>

Course format

All sessions contain at least 2 of these elements:*

1. Lecture: the instructor introduces the material for the day.
2. Group discussion: students form groups and each group discusses the questions raised during the lecture or specific questions posed by the instructor.
3. Class discussion: whole class discussion.

*Exceptions:

- In-class exercise sessions
- September 19: online class
- November 28: special event

Please check SacCT regularly for updates.

Other Important Information

I am here to help: Remember that I am here to help you learn as best as I can. Please utilize my office hours for further feedback and guidance on course-related issues.

Attendance: Attending class is expected. Any student who misses 2 or more classes in the first 2 weeks may be administratively dropped to make room for students on the waitlist.

Classroom behavior: The classroom should be a safe space to discuss any topic, no matter how controversial. We all have to build and maintain that safety by discussing respectfully, avoiding personal attacks, offensive epithets, contemptuous gestures and exclusive language. Any student who feels uncomfortable in class is encouraged to get in contact with me.

Use of electronic devices in class: Non-necessary electronic devices, such as laptops, tablets, phones, and Google Glasses, will not be permitted in the class. The exception to this rule is the use of laptops or tablets for notetaking or other uses directly relevant to the class. Anyone using such a device must sit in the first 2 rows.

Essay writing: Writing is a critical part of this course. Come talk to me if you would like some advice and/or resources on writing.

Gender neutral writing: In philosophy, gender-neutral writing is the accepted practice recommended by the American Philosophical Association. For example, instead of using masculine pronouns for the general case (as in “Everyone has a right to his own property”), use neutral pronouns, e.g. *her/his* or *their*. See the American Philosophical Association guidelines www.apaonlinecsw.org/apa-guidelines-for-non-sexist-use-of-language.

Plagiarism: Plagiarizing someone else’s work is bad for many reasons, and is a serious academic offence. Always use quotation marks and a footnote citation to indicate sentences or passages you borrow from another author. Assignments in which plagiarism is found will at the least be graded at 0 (not just an F). All incidents of plagiarism will be reported both to the Department Chair and to the Judicial Officer in the Office of Student Affairs for possible further administrative sanction. You are responsible for reading and understanding the details of the University's plagiarism policy. All papers will be put through plagiarism software. See the current student handbook for further information on student rights and responsibilities. Here is a link to the university's [honesty policy http://www.csus.edu/umannual/student/stu-0100.htm](http://www.csus.edu/umannual/student/stu-0100.htm)

Come talk to me if you are not sure about what constitutes plagiarism.

Disability access statement: Please tell me early if you have a disability requiring accommodation (documentation to SSWD, Lassen Hall 1008, 916-278-6955) or if you need to miss something to participate in officially recognized student activities. It is your responsibility to inform me with enough time in advance so we have time to secure your full participation. More information available here: <http://www.csus.edu/sswd/index.html>

If you miss a class... Please do not email me with the question “Did I miss anything important?” It is your responsibility to ask your classmates about the class you missed and take any other steps necessary to keep up with the course content. You won’t be excused of any of the required exercises for the reason “I didn’t know”. Also, read this poem: <http://www.loc.gov/poetry/180/013.html>

Email policy: Before emailing me with a question:

- check the syllabus in case your question is already answered there
- ask other students, for they might help you resolve your doubts
- consider whether it would be more appropriate to talk to me in person.

If after doing that, you still have a reason to email me, take into account that I don’t carry a smart phone with email access, and I don’t check my email at night and during the weekends. Allow at least two business days before receiving an answer. If you haven’t heard from me after that, please send me a follow-up email.

Some advice on how to correspond with your professors:
<http://www.csus.edu/phil/guidance/how-to-correspond.html>

Late submissions and missed exercises: Accommodations for the two in-class exercises will only be made under exceptional circumstances, such as a documented medical or family emergency (you need to contact me as soon as you can after the emergency and before the due date, extensions will usually not be given on or after the due date). Late papers (including paper outline) turned in after 10:50am on their due dates will be docked 10% (e.g., A- 90% becomes B- 80%); later papers will not be accepted (i.e., papers submitted after midnight of the due date will not be marked and will receive a zero grade).

Required Materials:

1. Barker, G. & Kitcher, P. 2014. Philosophy of Science: A New Introduction. Oxford University Press (B&K)
2. Additional required readings and links to online videos (noted on the schedule) will be made available on the course website.

Technology Requirements: Students must have a reliable way of accessing SacCT. All important course announcements, information, and resources will be communicated and available through SacCT (except the required textbook). Technical problems must be directed to the ITC Help Line @ 278-7337.

Grading and Assessment

Grading: Your final grade is determined by how many points you earn out of 100%, with these grade floors: 93%=A, 90%=A-, 87%=B+, 83%=B, 80%=B-, 77%=C+, 73%=C, 70%=C-, 67%=D+, 63%=D, 60%=D- (and F = all scores less than 60%). Definition of Grade Symbols: <http://catalog.csus.edu/12-14/first%20100%20pages/academicpolicies.html>

Anonymous grading: In order to guarantee impartial grading, I intend to grade as much work as possible anonymously. I need you to help me with that. Instead of your name, indicate your ID# on the two in-class exercises and the three assignments (paper outline, draft paper, and final paper).

Assessment: Your total points are calculated by adding the following differently weighted assessment items:

Assessment	Details	Due date	% of final mark	Required to pass the course
Participation	max. 0.5 of a mark per class*	By the end of any class	15%	No

Passage analysis	200-400 words	09/23	15%	Yes
Short answer	450-550 words	10/28	15%	Yes
Paper outline	150-250 words	11/02 by 10:50am	10%	Yes
Paper draft	2,000-2,100 words	11/18 by 10:50am	20%	Yes
Final paper	2,000-2,100 words	12/07 by 10:50am	20%	Yes

There is no mid-term or final exam. Paper drafts and final papers need to be submitted both in hard copy and via SacCT.

* On September 19th participation requires submission of a question via SacCT.

Information about items of assessment:

Participation: Students are expected to participate in class discussions. Respectful and constructive discussion is a critical part of academia. The pathway to good ideas is usually not a lonely one, but one filled with contributions and insights from others, sometimes in the form of challenges and questions, sometimes in the form of suggestions or comments. It is important to keep in mind that in this course, and in many others, you can learn not only from the texts you will read and from me, but also from your classmates. Class discussions are a good opportunity to learn from classmates and to practice your own argumentative skills.

Your participation will be graded on two parameters: relevance and quality.

There are two participation formats: speaking in class, and writing your questions/comments and handing them to me **at the end of class**. Written participation contributions that were not handed to me at the end of each class will **not** be considered. Participation amounts to a maximum of 0.5 of a point per class, and a maximum of 15 points in total.

Passage analysis: This is an in-class, writing exercise. It consists of (i) providing context for the passage, and (ii) paraphrasing the passage.

Short answer: This is an in-class, writing exercise. Minimum length: 450 words, maximum length: 550 words. You can use your class notes, but books and electronic devices are not allowed,

Paper:

In this assignment you have to argue for or against the following claim: “Values should not be part of scientific research”. Provide at least one example to illustrate your argument. You can focus on a particular branch of science or science more generally, and on a particular value (epistemic, social or moral) or values more generally. The paper will be graded on five parameters:

1. Does it contain a clear statement?

2. Does it have an argument in support of the statement?
3. Does it have an example illustrating the argument?
4. Does it discuss/engage with material covered in class?
5. Are references and citations correct?

There are three assignments enclosed in the paper assignment:

Paper outline: This is an outline of your paper. A template will be provided through the course site.

Paper draft: This is the first draft of your paper, which will receive feedback from the instructor.

Final paper: Your final paper will be graded on the aforementioned five parameters plus a new one: 6. Does the author address the questions/comments from the instructor?

Schedule: The schedule is subject to change. If the schedule changes, I will alert students in class, with an announcement on SacCT, and via an email to the address you have registered with SacCT. It is your responsibility to come to class, check SacCT, and check your SacCT-registered email. You can find the schedule on SacCT (in the sidebar on the left).

Session	Day	Date	Topic	Assignment for the class
1	M	29-Aug	Syllabus overview	
2	W	31-Aug	Introduction I	
3	F	2-Sep	Introduction II	Douglas 2015 + read the list of Qs
	M	5-Sep	Labor Day - No class	
4	W	7-Sep	What is science? I	Chalmers 1999 Intro, Ch. 1-2
5	F	9-Sep	What is science? II	B&K pp. 1-24
6	M	12-Sep	Scientific realism I	B&K pp. 24-37
7	W	14-Sep	Basics of argumentation	Vaughn 2006 pp. 3-42
8	F	16-Sep	Scientific realism II	B&K pp. 24-37
9	M	19-Sep	Science and Race I (online class)	Watch online videos + submit a question to the course site by the end of the day
10	W	21-Sep	Preparation for passage analysis	Vaughn 2006 pp. 3-42
11	F	23-Sep	In-class exercise: Passage analysis	
12	M	26-Sep	Science & Race II	Yudell et al. 2016

13	W	28-Sep	Causation	B&K pp. 50-76
14	F	30-Sep	Measurement	Cartwright & Runhardt 2014
15	M	3-Oct	Categorization	Anthony 2016
16	W	5-Oct	Values in Science I	Douglas 2014
17	F	7-Oct	Values in Science II	Douglas 2014
18	M	10-Oct	Relativism and Anthropocentrism	B&K pp. 78-94 + Gopnik 2016
19	W	12-Oct	Truth and Scientific progress	B&K pp. 94-103
20	F	14-Oct	Western Science & its generalizability	B&K pp. 106-117 + Henrich et al 2010
21	M	17-Oct	Bias in Evolutionary Biology	Lloyd 1993 (excerpt)
22	W	19-Oct	Bias in Neuroscience	Fine 2010 pp. 131-154; 168-175
23	F	21-Oct	Technology I	Clark 2000
24	M	24-Oct	Technology II	Rosenberg 2016 + Crawford 2016
25	W	26-Oct	In class exercise: Short answer	
26	F	28-Oct	Individualistic vs. Structural approaches	B&K pp. 117-121
27	M	31-Oct	Science, Sport & Sex Categorization	Karkazis et al. 2012
28	W	2-Nov	Risk I	PAPER OUTLINE DUE
29	F	4-Nov	Risk II	Slovic 1999
30	M	7-Nov	Science and the Environment I	B&K pp. 156-162
31	W	9-Nov	Science and the Environment II	Lombrozo 2015
	F	11-Nov	Veterans' Day - No class	
32	M	14-Nov	Is/ought & Causality I	
33	W	16-Nov	Is/ought & Causality II	Lombrozo 2014
34	F	18-Nov	Science and Politics I	B&K pp. 125-150 DRAFT PAPER DUE

35	M	21-Nov	Science and Politics II	B&K pp. 150-156
36	W	23-Nov	Values in Medicine I	Kessler 1990
	F	25-Nov	Thanksgiving – No class	
37	M	28-Nov	Online class	TBA
38	W	30-Nov	Values in Medicine II	Silvers 1998
39	F	2-Dec	Science reporting	Gigerenzer 2014
40	M	5-Dec	Review	Douglas 2015 + list of questions
41	W	7-Dec	Is knowledge always justified?	FINAL PAPER DUE
42	F	9-Dec	Open discussion	

List of readings (other than the required book by Barker & Kitcher, B&K) and media materials:

Sessions 3 & 40:

Douglas, Heather. 2015. Values in science. *The Oxford Handbook of Philosophy of Science*.

Session 4:

Chalmers, Alan. 1999. *What is this thing called science?* (Introduction + Chapters 1 & 2)

Session 6:

Vaughn, Lewis. 2006. Writing Philosophy: A Student's Guide to Writing Philosophy Essays (pp. 3-42)

Session 7:

Yudell, Michael, Dorothy Roberts, Rob DeSalle & Sarah Tishkoff. 2016. Taking Race Out of Human Genomics.

Session 11:

Weisberg, Deena, Frank Keil, Joshua Goodstein, Elizabeth Rawson, Jeremy Gray. 2008. The Seductive Allure of Neuroscience Explanations.

Session 14:

Cartwright, Nancy & Rosa Runhardt. 2014. Measurement.

Session 15:

Anthony, Andrew. 2016. 2006 A Space Oddity- The Great Pluto Debate.

https://www.theguardian.com/science/2016/may/01/2006-space-oddy-pluto-debate-row?CMP=share_btn_tw

Sessions 16 & 17:

Douglas, Heather. 2014. Values in Social Science.

Session 18:

Gopnik, Alison. 2016. How Animals Think.

<http://www.theatlantic.com/magazine/archive/2016/05/how-animals-think/476364/>

Session 20:

Henrich, Joseph, Steven Heine & Ara Norenzayan. 2010. Most people are not WEIRD.

Session 21:

Lloyd, Elisabeth. 1993. Pre-Theoretical Assumptions in Evolutionary Explanations of Female Sexuality.

Session 22:

Fine, Cordelia. 2010. *Delusions of Gender* (pp. 131-154, 168-175)

Session 24:

Clark, Andy. Natural-Born Cyborgs? <https://www.edge.org/conversation/natural-born-cyborgs>

Session 25:

- Rosenberg, Louis. 2016. Artificial Intelligence Isn't Just About Intelligence, But Manipulating Humanity. <http://futurism.com/artificial-intelligence-isnt-intelligence-manipulating-humanity/>

- Crawford, Kate. 2016. Artificial Intelligence's White Guy Problem. http://www.nytimes.com/2016/06/26/opinion/sunday/artificial-intelligences-white-guy-problem.html?_r=2

Session 28:

Karkazis, Katrina, Rebecca Jordan-Young, Georgiann Davies, & Silvia Camporesi. 2012. Out of Bounds? A Critique of the New Policies on Hyperandrogenism in Elite Female Athletes.

Session 29:

Slovic, Paul. 1999. Trust, Emotion, Sex, Politics, and Science: Surveying the Risk-Assessment Battlefield.

Session 31:

Lombrozo, Tania. 2015. How Psychology Can Save The World From Climate Change. <http://www.npr.org/sections/13.7/2015/11/30/457835780/how-psychology-can-save-the-world-from-climate-change>

Session 33:

Lombrozo, Tania. 2014. Using Science to Blame Mothers. <http://www.npr.org/sections/13.7/2014/08/25/343121679/using-science-to-blame-mothers-check-your-values>

Session 36:

Kessler, Suzanne. 1990. The Medical Construction of Gender: Case Management of Intersex Infants.

Session 38:

Silvers, Anita. 1998. A Fatal Attraction to Normalizing: Treating Disabilities as Deviations from Species-Typical Functioning.

Session 39:

Gigerenzer, Gerd. 2014. Breast Cancer Screening Pamphlets Mislead Women.