

SOCIOLOGY 3353G-650

Pseudoscience

Winter 2023

Online

Instructor: Professor Laura Huey
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Course Description: This course explores the principles of scientific reasoning through examining extraordinary claims. We will probe questions of belief and knowledge by sorting through a morass of fads, conspiracies, gimmicks, and peculiar ideas to learn about topics such as: the scientific method, human biases and how bad ideas go viral.

Prerequisite(s): Registration in third or fourth year of any program.

Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. The decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Anti-requisite(s): None

Course Objectives and Learning Outcomes:

Students will develop new knowledge and perspectives on the role of science, including being able to

- (1) identify and apply their understanding of the basic features of the scientific method.
- (2) describe the differences between science and pseudoscience.
- (3) understand the different types of claims people make and the ways in which those claims are presented in order to persuade an audience.
- (4) evaluate arguments and claims by applying critical reasoning

Course Material:

Readings have been uploaded for you on OWL. They are listed on the overview below. If, for some reason, you can't access them on OWL, you can go to the UWO library website, and you'll see each book and chapter is available to you for download in pdf form.

I have also taped a series of lectures for this seminar that are available to you in both audio and video formats. The PowerPoints are also available to you through OWL.

For access to the visual and audio version of the lecture, you can simply download the material through

OWL and/or access videos via YouTube (see below).

Evaluation

The evaluation methods described in the course outline are essential requirements for the course.

TRAAP assignment (email to lhuey@uwo.ca)	10 marks
Podcast assignments (2 x 20) (email to spongra@uwo.ca)	40 marks
Term assignment (email to lfergu5@uwo.ca)	50 marks

TRAAP Assignment

(DUE DATE: **January 27th**)

Select a topic related to health, beauty, politics, global issues and then locate a source on the Internet that addresses some aspect of your topic. It could be “coffee cleanses”, “paleo diets”, “cow cuddling”, covid vaccines or whether Hillary Clinton is an alien. Using the TRAAP evaluation system as your guide, answer each of the TRAAP questions to evaluate your source.

I will be grading this assignment, so please email your assignments to me at lhuey@uwo.ca

Podcast Assignments

(DUE DATE: **February 17** and **March 3**) Although I can be reasonably flexible with these dates, please note I cannot accept work later than **April 10**, 2023):

I am asking you to turn in **reviews** of 2 of the selected. These assignments are to be approximately 3-4 pages double-spaced.

For these reviews, you will be expected to provide a succinct brief on the key takeaways or messages you learned from listening to the podcast. A lot of this content will tie into ideas, concepts, research from class, so ***make sure that, when possible, you draw links between the podcast and what you learned from lectures provided for in this class.*** Of course, we are happy to accept your work by email.

These assignments will be evaluated by Stephanie Pongracz; please email your podcast assignments to her at spongra@uwo.ca. If you have questions about this assignment, you should first direct them to Stephanie.

Video Term Assignment

(DUE DATE: **March 31**):

I am asking you to turn in a thoughtful, detailed **review** of 1 of the selected YouTube videos.

As with the podcast reviews, you will be expected to provide a succinct brief on the key takeaways or messages you learned from listening to the video. A lot of this content will tie into ideas, concepts, research from class, so ***make sure that, when possible, you draw links between the podcast and what you learned from lectures provided for in this class.*** Of course, I am happy to accept your work by email.

You will be expected to hand in a 6-8 page comment piece that:

Detailed knowledge of a topic (including references to concepts, ideas, papers and/or discussions from class – **this is your chance to show what you learned**).

This assignment will be run by your Teaching Assistant (under my supervision). S/he will be your point of contact for working out your ideas, asking questions about expectations, providing insight into evaluation, etc. Please feel free to make the best use of their assistance.

This assignment will be evaluated by Lorna Ferguson; please email your assignments to her at lfergu5@uwo.ca. If you have questions about this assignment, you should first direct them to Lorna.

Student Absences:

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

Most deadlines in this course are ‘soft’ – meaning that I am willing to give you an extra week or two to hand in your assignment without penalty or without having to provide an excuse. That said, two things to note:

1. *If I have not received any work from you by March 15th, I will be following up with you to see how you’re doing, what your workload is like and how best I can work with you to complete your course requirements.*
2. *I do require all of your work to be received no later than April 10, 2023*

If you are unable to complete your course work on or by April 10th due to illness or other serious circumstances, please follow the procedures below (contacting Academic Counseling, etc).

Assessments worth 10% or more of the overall course grade:

For work totaling 10% or more of the final course grade, students must provide valid medical or supporting documentation to their Home Faculty Academic Counselling Office as soon as possible.

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own. Students should check the Western website to see what directives for Covid are to be followed. Western has been and will continue to follow directives established by the Middlesex-London Health Unit. That directive will state whether students should or should not come to campus/class and any other requirements (e.g., masks are mandatory). Please check on your own and do not email the instructor, the Department Undergraduate Advisor/Coordinator or the Faculty of Social Science Academic Counselling Office.

Absences from Final Examinations: N/A

Course Schedule and Readings:

Course Introduction – January 13th Microsoft Teams meeting at 1pm. I will send everyone a Teams meeting invite through your UWO email account. If you can't make it, do NOT worry! I have also taped a greeting for OWL that goes over many of the same things and we can always email or schedule a time for any unanswered questions.

Getting started

Information/False Information

Topics covered: Where do most people get their information from? Evaluating information sources. Why we need to be critical consumers. The TRAAP method. "Fake News".

Reading: Newton Lee's (2014) "Misinformation and Disinformation" from Facebook Nation.

Scientific and other forms of knowledge

Science

What is science? How is science different from other forms of knowledge? Why should we trust Science when scientists don't even agree? Let's look at this through climate change and other issues.

Reading: Paul Offit's (2018) "What Science Is – And Isn't" from Bad Advice: Or Why Celebrities, Politicians, and Activists Aren't Your Best Source of Health Information

Evidence

What is evidence? Evidence versus data. Evaluating claims made with different types of evidence, including anecdotes. Assessing claims using the same evidence. The great bacon debate.

No assigned reading for this topic

Why do people believe the things they do?

A Short History of Strange Ideas

Topics covered: A look at the types of beliefs people have held over the centuries. The socio-cultural reasons for why certain ideas appear at a given time. Magical elixirs, diet fads, conspiracy theories and astrology.

Reading: Daniel Loxton and Donald R. Prothero's (2013) "Why do People Believe in Monsters? The Complexity of Cryptozoology" from Abominable Science: Origins of the Yeti, Nessie and Other Famous Cryptids.

Emotions and Decision Making

Topics covered: Drawing on the Sociology of emotions, we look at anger, fear, uncertainty and other emotions in decision making. Magical thinking. Vaccine theories and conspiracies.

Reading: Geoffrey Beattie and Laura McGuire (2018) "Our Rational and Irrational Selves" from The Psychology of Climate Change.

Biases, Group Think and Distortions

Topics covered: Common errors in reason, logic and decision making. The role of peer pressure and group think. In-group/Out-group, identity and beliefs. How gender, race, age, sexual identity and other factors combine to increase or decrease willingness to hear different points of view.

Reading: Geoffrey Beattie and Laura McGuire (2018) “See No Evil” from *The Psychology of Climate Change*.

Celebrity Trends and Fads

Topics covered: Celebrities as role models. The role of social influencers in shaping consumer and other behaviors. Health and beauty advice and products from celebrities and influencers. Healing vibrations, diamond water and psychic vampire repellent.

Reading: Paul Offit’s (2008) “Next, on Oprah” from *Autism's False Prophets: Bad Science, Risky Medicine, and the Search for a Cure*.

The World Online

Topics covered: The role of social networks in reinforcing beliefs. How ideas go viral. Social media manipulation (buying ads, followers). Twitter and Facebook vs. Reality. TikTok and Instagram as the newest markets for shaping behaviours and preferences. The Benadryl Challenge. The Coronavirus Challenge.

Reading: Tom Nichols’ (2017) “Let Me Google That for You” from *The Death of Expertise: The Campaign Against Established Knowledge and Why It Matters*

Politics and Propaganda

Topics covered: What about the role of governments in hyping fears or engaging in denialism? What is propaganda. How is propaganda different from other forms of misinformation? Propaganda techniques. The role of states and influential non-state actors in creating propaganda. Examples of state actors putting out pseudoscientific misinformation. Hydroxychloroquine and Covid-19.

No assigned reading this week

Getting critical

Evaluating Expertise

Topics covered: Understanding and evaluating expertise. How to become a media expert. Why Wikipedia is not an expert source. Why people distrust experts. When experts do get it wrong. Cold fusion and the death of the Shah of Iran.

Reading: Massimo Pigliucci’s (2018) “Who’s Your Expert?” from *Nonsense on Stilts: How to Tell Science from Bunk*.

Spotting Bad Numbers

Topics covered: Scared of math & stats? **No problem!** 10 tricks for spotting dodgy claims involving numbers and graphs (for the non-stats person). Fancy packaging to hide false claims.

Listening to your intuition when things aren't adding up. Digging deeper with Prof. Google.

No assigned reading this week

Challenging Pseudoscience

Topics covered: Why challenge misinformation? Isn't truth relative? Pseudoscience can hurt your health and wellbeing. Skepticism versus cynicism. Dissent and speaking up. Science communication. Arming yourself against 'fake news'.

Reading: Yasmin Ibrahim's (2020) "History of Fake News" from Fake News in an Era of Social Media: Tracking Viral Contagion.

Important Policies

Academic Consideration for Missed Work: Students must provide valid medical or supporting documentation in order to receive accommodation for missed work worth 10% or more of the final grade in the course. All required documentation for absences must be submitted to the Academic Counselling office of a student's Home Faculty. Individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds or for other reasons.

Western's policy on Accommodation for Medical Illness can be found at https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf. The student medical certificate is available at https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Religious Accommodation: When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at <https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

All students pursuing academic consideration, regardless of type, must contact their instructors no less than 24 hours following the end of the period of absence to clarify how they will be expected to fulfill the academic responsibilities missed during their absence. Students are reminded that they should consider carefully the implications of postponing tests or midterm exams or delaying submission of work and are encouraged to make appropriate decisions based on their specific circumstances.

Accessibility Options: Students with disabilities or accessibility challenges should work with Accessible Education (formerly SSD http://academicsupport.uwo.ca/accessible_education/index.html), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: [Academic Accommodation for Students with Disabilities](#). Information regarding accommodation of exams is available on the Registrar's website: www.registrar.uwo.ca/academics/examinations/accommodated_exams.html

Scholastic Offences: Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following web site: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

A Note on Plagiarism: Students must write their assignments in their own words. Whenever students take an idea from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major scholastic offence.

Plagiarism Checking: All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<https://www.turnitin.com/>).

Mental Health: Students who are in emotional/mental distress should refer to Mental Health@Western (www.uwo.ca/health/mental_wellbeing/index.html) for a complete list of options how to obtain help.

Please visit the Social Science Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: [Academic Counselling - Western University \(uwo.ca\)](#).

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at https://www.uwo.ca/health/student_support/survivor_support/get-help.html .To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Guidelines for Grades/Marks

Sociology 1000-Level

A's not to exceed B's
Means in the range of 68-72%

Sociology 2000-Level

A's not to exceed B's
Means in the range of 70-75%

Sociology 3000-Level

Means in the range of 73-80%

Sociology 4000-Level

Means in the range of 78-82%



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Class Resources

Podcasts

You can choose from among the following *Science Alive* podcasts:

Tali Sharot: The Influential Mind

Kwame Anthony Appiah: Who am I? Who are You? Rethinking Identity

Kevin Dutton: Black and White Thinking

Andy Norman: Mental Immunity

Michael Gordin: Where Science Meets Pseudoscience

Nina Teicholz; The Big Fat Surprise about Diet and Nutrition

Jonathan Rauch: The Constitution of Knowledge

These can be found on Spotify at:

<https://open.spotify.com/show/4eDCVvVXJVwKCa0QfNbuXA?si=-EYivN2XR8-RzjllNEg6Tw&nd=1>

YouTube

The following are TED Talks available on YouTube

J. Marshall Shepherd: Three Kinds of Bias that Shape Your Worldview

<https://www.youtube.com/watch?v=LcNvkhS4UYg>

Carrie Poppy: A Scientific Approach to the Paranormal

https://www.youtube.com/watch?v=n8yhaFd_GpM

Chaehan So: Why Are We Wrong When We Think We're Right?

https://www.youtube.com/watch?v=nVRco_eLjdc

Sinan Aral: How Can We Protect Truth in an Age of Misinformation?

<https://www.youtube.com/watch?v=-7ORAKULeI4>

Naomi Oreskes: Why We Should Trust Scientists

<https://www.youtube.com/watch?v=RxyQNEVOEIU>

Ben Goldacre: Battling Bad Science

<https://www.youtube.com/watch?v=h4MhbkWJzKk&t=84s>

Phillip Fernbach: Why Do We Believe Things That Aren't True

<https://www.youtube.com/watch?v=jobYTQTgeUE>

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