



**The University of Western Ontario**  
**SOCIOLOGY 3353G-650**  
**Pseudoscience**  
**Winter 2022-2023**  
**Online course**

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‘Do vaccines carry microchips that allow billionaires to track you?’

‘Can a perfumed spray act as a psychic vampire repellent?’

‘Does running water over a diamond produce an alkaline that will detox your body?’

**Course Description:**

We live in a time of unprecedented scientific and technological innovation and change. Yet, despite all of the benefits science has brought us, humans appear just as susceptible to hoaxes, misinformation, and scams as our predecessors were in earlier times. Whereas in previous centuries we might blame a lack of knowledge for that susceptibility, today we live in an age of information overload. In fact, with so much information, claims and counter-claims, how can we know what to believe? How can we make decisions that are better for us, for our communities and our globe?

This course is designed to give students an opportunity to explore the principles of scientific reasoning through examining extraordinary claims from across time and space. 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): None.**

**Anti-requisite(s): None.**

**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

## Required Text(s):

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.

## Evaluation

TRAAP assignment	10 marks
Podcast assignments (2 x 25)	50 marks
Video assignment (1 x 25)	25 marks
Final comment	15 marks

## TRAAP Assignment

**(DUE DATE: September 30<sup>th</sup>)**

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.

## Podcast Assignment

**(DUE DATES: October 31)** Although we can be reasonably flexible with these dates, please note I cannot accept work later than December 3, 2020):

I am asking you to turn in **reviews** of 2 of the selected.

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, I am happy to accept your work by email.

## Video Assignment

**(DUE DATE: November 30)** Although we can be reasonably flexible with these dates, please note I cannot accept work later than December 3, 2020):

I am asking you to turn in a **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.

## **Comment on What You Learned**

**(DUE DATE: December 10<sup>th</sup>)**

You will be expected to hand in a 6-8 page comment piece in relation to **two** of the topic areas covered in this class. What I'm looking for is to see:

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**);

You may argue for or against something, compare or contrast two different perspectives or types of policing – I leave that choice up to you. As always, please feel free to float your ideas past me, and be assured that I will set aside time to discuss the assignment.

## **Overview**

### **Course Introduction**

#### ***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 agree. Global warming 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 this week***

#### **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*.

## **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*.

## ***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. Abuse of public figures ' and others in public debates. 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, Covid-19 and fish tanks.

**No assigned reading this week**

**Correcting misinformation**

## 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*.

**Wrapping up**

## Open Topic

Topics covered: Every year I like to invite students to contribute topic ideas for the final class. This gives you a say on the content and provides opportunities to clarify concepts or ideas and/or to further your knowledge on a subject that I may have covered or you feel is missing from the syllabus. On November 1<sup>st</sup>, I'll be sending out an email inviting your suggestions for content and then put the lecture together accordingly. So, if you want to hear more about research involving homeopathy, the science behind beauty creams or master cleanses, we can cover these and more.

**No assigned reading this week**

## 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](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](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>

## Important Policies

### **Policies for Assignment Deadlines:**

Have all of your assignments turned in by December 6<sup>th</sup>. Assignments will not be accepted after this date without notification from Academic Counselling that you have provided written documentation of a valid reason as to why you are unable to complete your work during the term.

### **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 (the Scholastic Offence Policy can be viewed in the Western Academic Calendar).

### ***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 ([www.turnitin.com](http://www.turnitin.com)).

### **Policy on Accommodation for Medical Illness**

Western's policy on Accommodation for Medical Illness can be found at [www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_medical.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf).

Students must see the Academic Counsellor and submit all required documentation in order to be approved for certain accommodation:

[https://counselling.ssc.uwo.ca/procedures/academic\\_consideration.html](https://counselling.ssc.uwo.ca/procedures/academic_consideration.html)

### **Accessibility Options:**

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519 661-2111 x 82147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar's website: [www.registrar.uwo.ca/examinations/accommodated\\_exams.html](http://www.registrar.uwo.ca/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:

[www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf)



## **Mental Health**

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

## **Grading guidelines**

### **Sociology 1020 and 1021E**

Means in the range of 68-72%

### **Sociology courses at the 2100**

Means in the range of 70-75%

### **Sociology courses at the 2200 level**

Means in the range of 69-73%

### **Sociology courses at the 3300-level (including Soc 3300a and 3302b)**

Means in the range of 73-80%

### **Sociology courses at the 4400-level**

Means in the range of 78-82%