

GARP 0110 Fall 2020: Week #3 Cookbook.

Welcome to Week #3 of the semester - this week let's further explore the limits of science, science denial, and the concept of scientific confidence: scientific confidence is the strongest when a) many different lines of evidence and reasoning all pointing to the same logical conclusion and b) when it is supported by a strong global and diverse scientific consensus. The key concept here is scientific consensus.

⇒ Everything that you need for this week is included in / linked from this cookbook.

Questions / Feedback: cbraun@westfield.ma.edu or [Anonymous](#) (via Padlet)

1) [Week #3 Introduction Video](#)

2) Topics.

1. Review and Reflection: Is it science?
2. Rationalia.
3. Science Denial.
4. The Science Knowledge Survey #2.
5. Zoom Wednesday.
6. Trust in Science / Scientific Consensus.
7. Climate Change and COVID-19.
8. Week #3 Assignment.

3) Zoom Wednesdays.

GARP 0110-001: 11:30-12:20
GARP 0110-002: 12:35-13:25
GARP 0110-003: 08:15-09:05

Join Zoom Meeting:

<https://zoom.us/j/93899213283>

4) [Week #3 Synopsis Video](#)

**Please contact me for help or clarification of my expectations as needed.
I'm here to help.**

Course Schedule.

Week	Dates	Delivery Method.	Topic/Theme.
Week 1	W 9/2 F 9/4	Zoom Wednesday Asynchronous Online Learning	Introduction, Course Logistics What is SFFP?
Week 2	M 9/7 W 9/9 F 9/11	No class (Labor Day) Zoom Wednesday Asynchronous Online Learning	What is Science? What is Science? What is Science?
Week 3	M 9/14 W 9/16 F 9/18	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	The Limits of Science The Limits of Science The Limits of Science
Week 4	M 9/21 W 9/23 F 9/25	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Presidential Briefing #1 Library Session Presidential Briefing #2
Week 5	M 9/28 W 9/30 F 10/2	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Science and Society Science and Society Science and Society
Week 6	M 10/5 W 10/7 F 10/9	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Climate Change Climate Change Climate Change
Week 7	M 10/12 T 10/13 W 10/14 F 10/16	No class (Columbus Day) Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Climate Change Climate Change Climate Change
Week 8	M 10/19 W 10/21 F 10/23	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Climate Change Climate Change Climate Change
Week 9	M 10/26 W 10/28 F 10/30	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Climate Change Climate Change Climate Change
Week 10	M 11/2 W 11/4 F 11/6	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Climate Change Climate Change Climate Change
Week 11	M 11/9 W 11/11 F 11/13	Asynchronous Online Learning No class (Veteran's Day) Asynchronous Online Learning	Test #1 Test #1
Week 12	M 11/16 W 11/18 F 11/20	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Sustainable Energy Sustainable Energy Sustainable Energy
Week 13	M 11/23 W 11/25 F 11/27	Asynchronous Online Learning No class (Thanksgiving Break) No class (Thanksgiving Break)	Sustainable Energy
Week 14	M 11/30 W 12/2 F 12/4	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Sustainable Energy Sustainable Energy Sustainable Energy
Week 15	M 12/7 W 12/9 F 12/11	Asynchronous Online Learning Zoom Wednesday Asynchronous Online Learning	Special Topics Special Topics Special Topics
Week 16	M 12/14 W 12/16	Asynchronous Online Learning Zoom Wednesday Test # 2 (as scheduled)	Special Topics Special Topics Test #2

1) Review and Reflection: Is it Science?

Remember John Dewey: We do not learn from experience, we learn from reflecting up experience.

1.1) Is it Science?

Please review [Is it Science? slides](#) and make sure that you read and understand the speaker notes below each slide for additional context, questions, and explanations - these notes summarize what I would say in-class. You can move the divider between the slide and the speaker notes so that you can see all of the speaker notes or use the presentation mode.

Good resource: [A Rough Guide To Spotting Bad Science](#)

1.2) John Oliver Video.

[Scientific Studies: Last Week Tonight with John Oliver](#) (19:27-minutes) is very topical here and obviously satirical. Please watch the entire video if you can or focus on the following sections:

- 2:10 to 3:20 minutes.
- 14:05 to 16:05 minutes.

1.3) Your Turn.

Please complete the short [Week #2 Review Quiz](#).

2) Rationalia.

Let's ponder this question again: would you want to live in Rationalia?

2.1) A Thought Experiment.

Please review the [Rationalia slides](#) and make sure that you read and understand the speaker notes below each slide for additional context, questions, and explanations - these notes summarize what I would say in-class. You can move the divider between the slide and the speaker notes so that you can see all of the speaker notes or use the presentation mode.

2.2) Your Turn: A Different Approach.

Okay, so maybe immigrating to Rationalia is not what you chose to do, but still: how should we be making good decisions about important issues (= wicked problems) within a democratic society? How do we combine ethics, science, politics, etc. in-practice?

Please read the opinion piece [Let democracy rule nuclear energy](#) (Nature, 22 March 2018) and ponder the following questions:

1. How did South Korea end-up making their decision?
2. How would such a decision be made in the USA?
3. What do you think about the approach used in South Korea?

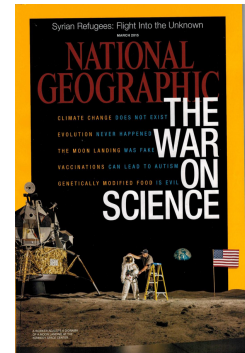
Please enter your thoughts and ideas into the [Survey: Nuclear Energy in South Korea](#).

3) Science Denial.

Let's go to the other extreme: the denial of science.

3.1) Reading.

Please read the satirical piece by Andy Borowitz [Scientists: Earth Endangered By New Strain Of Fact-Resistant Humans](#) (The New Yorker, 12 May 2015).



3.2) Science Denial = FLICC.

Please review the [Science Denial = FLICC slides](#) and [my Science Denial = FLICC YouTube video](#) and make sure that you read and understand the speaker notes below each slide for additional context, questions, and explanations - these notes summarize what I would say in-class. You can move the divider between the slide and the speaker notes so that you can see all of the speaker notes or use the presentation mode.

3.3) Science Denial and the Anti-Vaccination movement.

Here are two interesting articles for you to look at:

- [Just 50% of Americans plan to get a COVID-19 vaccine. Here's how to win over the rest](#) (Science, 30 June 2020).
- [What can the anti-vaccination movement teach us about improving the public's understanding of science?](#)

4) The Science Knowledge Survey #2.

Your Turn: Please complete the [Science Knowledge Survey #2](#).

5) Zoom Wednesday.

- Zoom Link: <https://zoom.us/j/93899213283>
- [Week #3 Zoom Wednesday Worksheet](#)

6) Trust in Science / Scientific Consensus.

Trust in science (or confidence in science) tends to be the strongest when a) many different lines of evidence and reasoning are all pointing to the same logical conclusions and b) when an expert consensus emerges after peer-review in a large and diverse scientific community open to criticism.

Consensus and community are key concepts here. ([after Oreskes, 2019](#))

6.1) The Scientific Consensus vs FLICC.

Please review the [Scientific Consensus vs. FLICC slides](#) and [my Scientific Consensus YouTube video](#) and make sure that you read and understand the speaker notes below each slide for additional context, questions, and explanations - these notes summarize what I would say in-class. You can move the divider between the slide and the speaker notes so that you can see all of the speaker notes or use the presentation mode.

Please watch this video: [Why we should trust scientists](#) (Naomi Oreskes, 19:14 minutes). The entire video is great, but make sure that you focus on the section after ~14:00 minutes as necessary.

6.2) Your Turn.

Please answer the following four questions (see the Week #3 Assignment below):

1. "You can think of science as a kind of a jury." Please explain what she means by that statement.
2. Why is science an appeal to authority? Please explain her argument.
3. Why do modern cars work so well? Please explain her argument.
4. What is the basis for our trust in science and technology?

7) Science, Climate Change, and COVID-19.

Climate change and COVID-19 offer two perfect case studies of how science is intertwined with the political and economic realities when it comes to making sound policy decisions.

7.1) Hurricane Laura, Climate Change, and COVID-19.

Please review the 1-pager [Climate Change / COVID-19: Compound Risks](#).

7.2) Climate Change and Coronavirus.

Please watch this great video [Climate Change and Coronavirus | Special Episode](#) (9:40 minutes) and answer the following three questions (see the Week #3 Assignment below):

1. Who is Katharine Hayhoe? Have a look at her awesome YouTube Channel [Global Weirding with Katharine Hayhoe](#).
2. So: has climate change caused the coronavirus?
3. List all the connections between climate change and infectious diseases.

There are clearly a series of important connections between climate change and COVID-19 pandemic and infectious diseases in-general - here are some major differences and issues:

- One important difference between climate change and the COVID-19 pandemic is that climate change does not peak, flattens, and then 'goes away' due to vaccinations, testing, and herd immunity. Climate change is a fundamental consequence of our cumulative lifestyles.
- The COVID-19 pandemic is a perfect illustration of how the 'normal' operation of science (slow, deliberate, nuanced, etc.) collides with the practical needs of society (e.g. urgency, high stakes, values, etc.).
- Science loves uncertainty, society does not.

8) The Week #3 Assignment.

Please see [Week #3 Assignment](#) for instructions and details.

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