Agenda

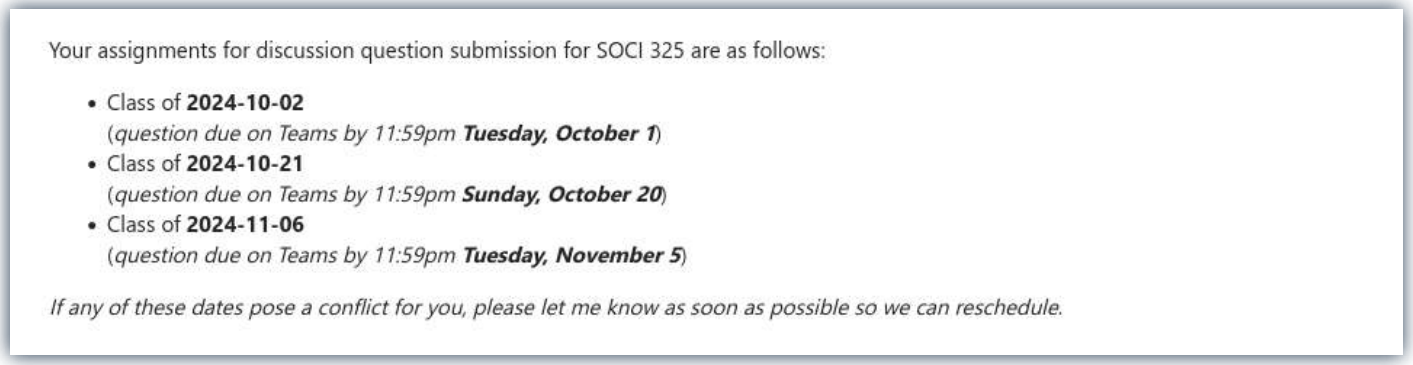
Normal science, paradigms, and scientific revolutions

1. Student discussion questions
2. The Kuhnian revolution
3. Reading discussion

STUDENT DISCUSSION QUESTIONS

Discussion question assignments

- ***Everyone should have received an email that looks like this***:



Your assignments for discussion question submission for SOCI 325 are as follows:

- Class of **2024-10-02**
  (*question due on Teams by 11:59pm **Tuesday, October 1***)
- Class of **2024-10-21**
  (*question due on Teams by 11:59pm **Sunday, October 20***)
- Class of **2024-11-06**
  (*question due on Teams by 11:59pm **Tuesday, November 5***)

If any of these dates pose a conflict for you, please let me know as soon as possible so we can reschedule.

- These list the date of the class period that your question should relate to and the due date for submitting the question.
- E.g. the question for the class of November 11 (Poudrier 2007) is due on November 5.
- Turn these in on the "Assignments" section on Teams.

STUDENT DISCUSSION QUESTIONS

Two-part submissions:

1. Prompt

- One (broad) idea, described in a few sentences
- Can contain multiple, related "questions"
- Can contain quotes from text
- Should use in-text (parenthetical) citations
- *A **single prompt** (one of the numbered items on the worksheets)*

2. Motivation

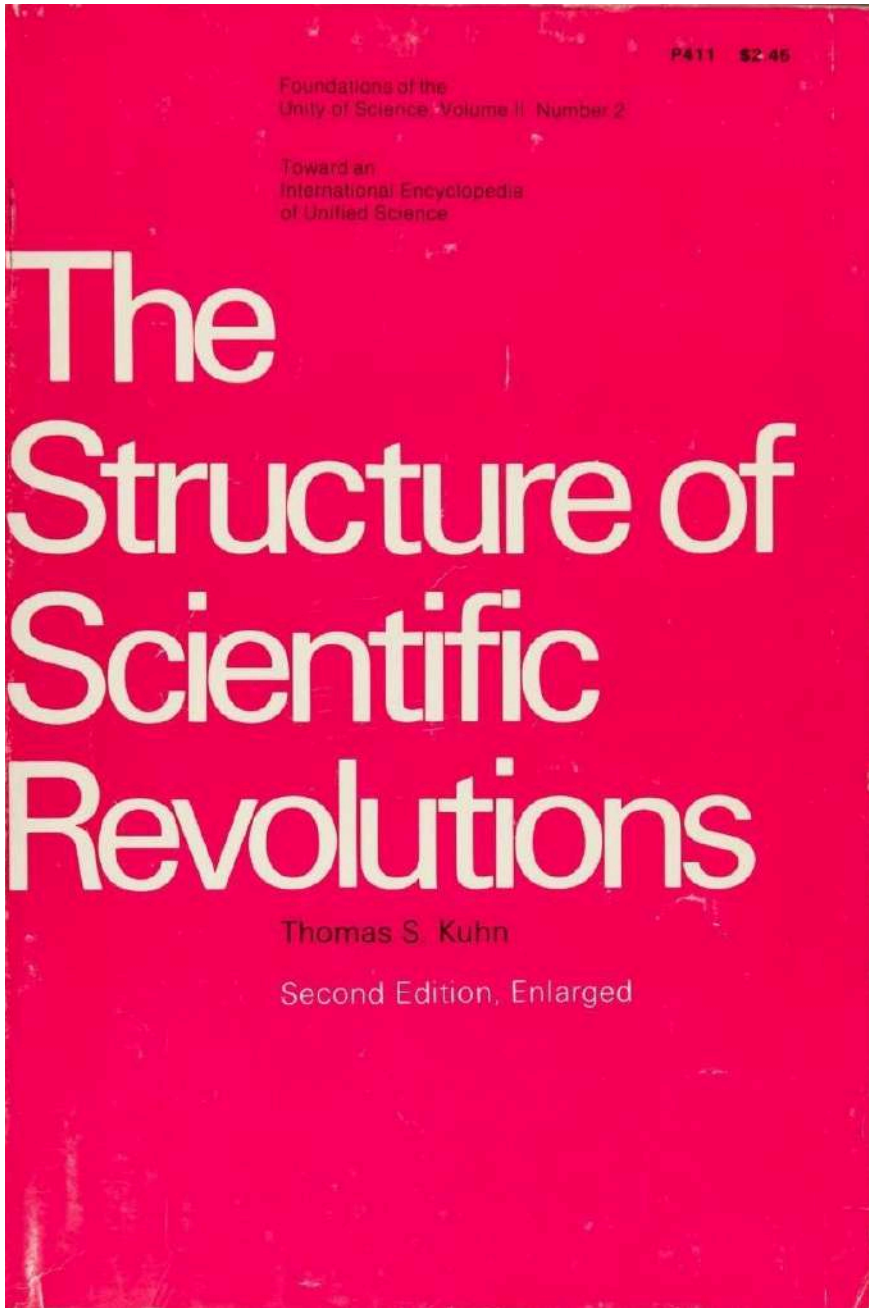
- A few sentences describing where the question is coming from and where I hope it may lead
- Counts toward score, but will not be published if your question is chosen for inclusion

Example:

Prompt:
Merton wrote The normative structure of science early in his career in 1942 (during World War II) and included it in a collection of his work on the sociology of science in 1973 (during the Cold War). How might the political climate of this time span in America have influenced his work? Do his theories cast science in a particular light? How does this work look through the lens of Wolfe's (2018) depiction of science during the Cold War?

Motivation:
I was thinking about the age of Merton's piece, (published more than 80 years ago!) in the context of the course theme "history of science is a social history." Rather than just understanding the reading as an example of the sociology of science, I thought it would be interesting to treat it as the object of our inquiry. In addition to helping us understand Merton's arguments in context, I hope this will raise the larger issue of whether we can apply the tools of the sociology of science to the sociology of science itself.

KUHNIAN REVOLUTION



Thomas Kuhn (1922–1996)

- Physicist by training
- Transitioned to history and philosophy of science after PhD

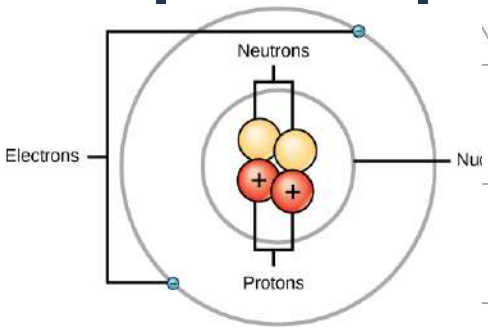
The Structure of Scientific Revolutions

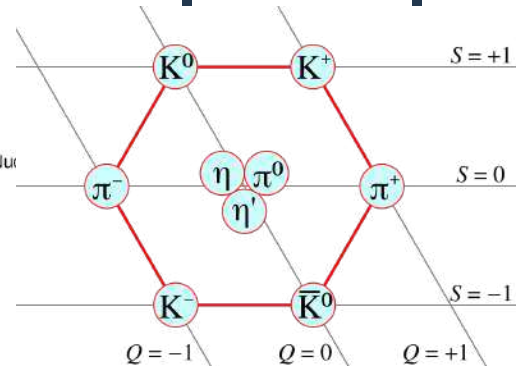
- First published in 1962
- "Normal science" vs. "paradigm shifts"
- Directly confronted the prevailing (functionalist) view of science as an institution
- Had a huge impact, arguably spurring its own paradigm shift in the philosophy and sociology of science

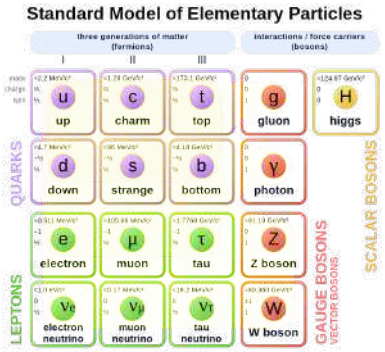
EXAMPLE FROM PARTICLE PHYSICS

Normal science | **Crisis & revolution!** (paradigm shift) | **Normal science**

1940s	1950s	1960s	1970s	1980s	…	2010s
Widespread agreement on elementary particles (proton, neutron, electron, photon)	Continued discovery of more and more members of the elementary "particle zoo"	Active development of new models (e.g. "eightfold way")	Acceptance of Standard Model, explaining existing anomalies in a new theoretical framework, and predicting the existence of undiscovered particles			Experiments confirming predictions of the Standard Model, mainly through observation of predicted particles(top quark, tau neutrino, Higgs boson)







See Pickering (1984) "Constructing Quarks: A Sociological History of Particle Physics"

WHY WAS KUHN *REVOLUTIONARY?*

Anti-positivist

- ***Positivism*** is the idea that *neutral observations inform and shape objective knowledge and theories*.
- In TSSR, Kuhn suggests instead that the theoretical frameworks of a paradigm shape observations and define scientific facts.
- For Kuhn, facts do not exist without a paradigm that can give them meaning. Observation is ***dependent*** on theory.

Anti-falsificationist

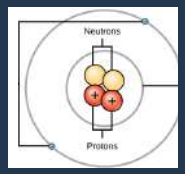
- ***Falsificationism*** is the idea that *theories are disproven by counter-examples*.
- Kuhn argues that counter-examples (anomalies) do not normally cause crisis.
- Only during revolutions in paradigm are anomalies employed as justification for new worldviews.

Structural barriers to participation in science

Required reading

- **van den Brink and Benschop (2012)**
  Gender practices in the construction of academic excellence: Sheep with five legs

Image credit



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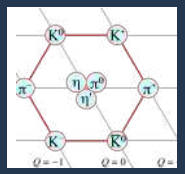

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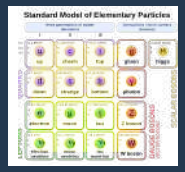

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