

Güliz Ger

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Office hours: Tuesday 13:30-15:30 or by appointment

MAN 607: Philosophy of Scientific Inquiry and Epistemology

The objectives of this seminar are:

1. to enhance the critical thinking abilities of future researchers
2. to enhance the future researchers' abilities to build, articulate, present their thought and arguments.
3. to expose future researchers to:
 - the philosophical and epistemological foundations of scientific inquiry
 - fundamental issues distinguishing positivist versus postpositivist approaches to scientific inquiry
 - various alternative approaches to research, methodology and design (surveys, experiments, interpretive research)
 - the issues and the criteria in the assessment of the "quality" or the "goodness" of scientific research
 - critical considerations in the conceptualization (theoretical framing) of a study

Assignments, presentations, and term papers provide exposure to fundamental issues as well as practice in critical reading and thinking about a) scientific inquiry, b) evaluation and development of research and theory, and c) research design, research questions, concepts, and units of analysis. The seminar provides an opportunity for thinking through, building, and presenting well-developed thoughts about issues of science and research as well as learning from each other while students discuss and critically evaluate the readings in light of the assigned questions, do reviews, and make presentations.

Texts and Other Readings

Required & to be purchased:

1. Losee, John 2001, *A Historical Introduction to the Philosophy of Science*, 4th ed., Oxford Univ.
2. Chalmers, Alan F. 1999, *What is this Thing Called Science?*, 3rd ed., Hackett Publishing
3. Kuhn, Thomas, 1996, *The Structure of Scientific Revolutions*, 3rd ed., Univ. of Chicago Press
4. Bernstein, Richard J., 1983, *Beyond Objectivism and Relativism*, Philadelphia: University of Pennsylvania Press
5. Popper, Karl, 1985, *Popper Selections*, Ed. David W. Miller, Princeton, NJ: Princeton
6. Latour Bruno and Steve Woolgar, 1986, *Laboratory Life: The Construction of Scientific Facts*, Princeton

Required & made available by the instructor:

Other readings as assigned in the schedule or to be assigned later

What you find: Google, Google Scholar, blogs, etc

<http://www.pitt.edu/~pittcntr/About/links.htm>

Grading and Assignments

- 60% 10 critical essays (6 % each): written and oral discussion
- 20% Term paper
- 20% Class participation

Critical Essays: Groups of three students will write and present 10 short critique papers (2-4 pages). Critical, thorough, insightful, and well-developed evaluation and thinking are valued, as well as, of course, organization/structure. **There are two types of tasks:**

- address the assigned questions for the weeks 2-11. You will **choose eight** of the ten possible assignments.
- Critical evaluation of a research article for each of the 13th and 14th weeks.

Term Paper: Each student will write and present one term paper with one rewrite. This paper (15 pp.) provides you an opportunity to integrate all of the course material. It can be on either

- a) an essay on a philosophical or epistemological topic/issue or a philosopher of interest to you that you discuss in light of the course material - e.g. "causality," especially for those of you who will do experimental work or "explanation and prediction," or
- b) a research proposal: formulation of a research question and a design for methodology, considering and discussing the course material.

Critical, thorough, insightful, and well-developed evaluation and thinking are valued, as well as, of course, organization/structure.

Class Participation: The course will follow a discussion format. Both the quality and the frequency of participation are important. You are expected to have read and thought about the readings and the assigned questions **prior to** class and come to class prepared to discuss the readings, the week's questions, and each other's comments and presentations.

Schedule, Topics, and Assignments (subject to change)

Week 1: Thinking about Research – Philosophical Foundations & Debates

Week 2: The Practice of Science (and Interpretation and Judgment)

Reading: Latour & Woolgar 1- 186

Assignment: Critical Essay 1: Address Questions for Week 2

Week 3: The Practice of Science, the Researcher, and Methodology

Reading: Latour & Woolgar 187-260; Christensen et al. 1-66; Matthew & Ross 16-86.

Assignment: Critical Essay 2: Address Questions for Week 3

Week 4: Historical Introduction to Philosophy of Science

Reading: Losee 1-142 (till the end of "Inductivism v.the Hypothetico-Deductive");

Assignment: Critical Essay 3: Address Questions for Week 4

Week 5: Historical Introduction to Philosophy of Science (continued)

Reading: Losee 143- the end

Assignment: Critical Essay 4: Address Questions for Week 5

Week 6: Reality, Knowledge and Truth

Reading: Chalmers, 1-58

Popper in Miller, pp. 25-132

Assignment: Critical Essay 5: Address Questions for Week 6

Week 7: Scientific Rigor & Development

Readings: Popper in Miller, pp. 133-206

Chalmers, pp. 59-103

Assignment: Critical Essay 6: Address Questions for Week 7

Week 8: Scientific Rigor & Development (continued)

Readings: Kuhn

Chalmers, pp. 104-148

"Theories and controversies in finance: a paradigmatic overview," 2003, Ardalan, K.
International Journal of Social Economics, 30 (1/2): 199-209

"The political economy paradigm: Foundation for theory building in marketing,"
1983, Arndt, J., *JM*.

Assignment: Critical Essay 7: Address Questions for Week 8

Week 9: Science, Rationality, Explanation, Discovery, & Discourse

Readings: Bernstein, pp. 1-108 (Parts I & II)

Assignment: Critical Essay 8: Address Qs for Week 9

Week 10: Philosophy and Epistemology of Social Science

Readings: Delanty & Strydom, eds., 2003, pp. 1-25

Bernstein, pp. 109-130, 150-169, 171-231

Revisit Christensen et al. 1-66; Matthew & Ross 16-86.

Assignment: Critical Essay 9: Address Qs for Week 10

Week 11: Current debates: Alternative Views and Issues

Readings: TBA

Chalmers, 149-253

Denzin & Lincoln pp. 105-117

"Marketing, Scientific Progress, & Scientific Method," Anderson, P. 1983, *JM*

"On Method in Consumer Research: A Critical Relativist Perspective," Anderson, P. 1986, *JCR*

"On Making Marketing Science more Scientific," Arndt, 1985, *JM*

"Alternative Ways of Seeking Knowledge," 1988, Hudson & Ozanne. *JCR*.

"Paradigms Lost: on theory and method in research in marketing, 1983, Deshpande, R., *JM*

"Postmodern Finance," Mc Goun

Revisit: "Theories and Controversies in Finance," 2003, Ardalan

Culture and finance

"Postpositivist Critical Multiplism," Cook, 1985

Assignmt: Critical Essay 10: Address Qs for Week 11; focus on own discipline (Finance, OM, Mkg.)

Week 12: Theory, Theory Development/Building, and Theory Testing

Readings: TBA

Dubin, 1978, *Theory Building*, pp. 5-32

Sutton & Staw, Weick, DiMaggio, 1995, *AdminSciQuartely*, pp. 371-397

Zaltman et.al.1982, "Being Interesting" in: *Theory Construction in Marketing*

Ladik & Stewart

Locke Golden-Biddle

Boellstorf 2008, 2010

Holbrook

Sawyer

Assignment: First version of the term paper - for feedback

Week 13: Evaluating Research

Readings: To-be-critiqued research article: Ger & Belk 1996, JEP

Bradburn, 1983, "Response effects"

Tull and Hawkins "Measurement" 1984 (pp. 226-248)

Christensen et al 2011, 67-198 (Res Pr, ethics, measurement & sampling, validity)

Assignment: Critical Essay 11: Critical evaluation of a research article.

Also, be prepared to discuss the questions for Week 13

Week 14: Evaluating Research

Readings: To-be-critiqued research article: Gorn 1982, JM

Marshall,1990 "Goodness Criteria," in: Guba, pp. 188-197

Moisander and Valtonen 2006, "Evaluating cultural research," 21-41

Review: Christensen et al 2011, 167-198 (research validity)

Shadish, Cook, and Campbell, 2002, 1-32

Recommended: Shadish, Cook, and Campbell, 2002, 33-102

Assignment: Critical Essay 12: Critical evaluation of a research article.

Also, be prepared to discuss the questions for Week 14

Final's Week: Term Paper (Rewrite) and Presentation

Suggestions on writing critical essays

1. What is the main point the author(s) is(are) making?
 - a. Describe, succinctly, very briefly, the basic arguments, the heart of the major points of the author, in your own words, with a well-founded description.
 - b. Make sure that you interpret and analyze fragments (sentence, or a paragraph, or a page) of a text in the context of the whole text. That is, do not take and use a fragment as if it represents the whole text, do not to carry a metaphor too far.
 - c. Consider the limitations of the work(s).
2. What did the reading make you think? What are your questions? Is there anything that you disagree with in the author's arguments? Reflect critically on these in light of this particular and previous readings. Critically reflect on your own thoughts and criticisms; think through them. Then, articulate, elaborate, illustrate your **own argument convincingly**.
3. What did you learn? Any new insights? What changed (if anything) in your own thinking? Is there something new that you now see/understand that you never saw/understand before?
4. What are the implications for you as a scientist/researcher? What are the implications for your own field, your research area? E.g. implications for the practice of a scientist in finance, marketing, or decision sciences/OR?

Please note:

1. Comparative thinking helps. Analogical thinking helps: e.g. The French or the Russian revolution (for Kuhn).
2. Think about the words – concepts, connotations and denotations. Choose and use your words carefully.
3. Don't assume at the start what you want to eventually argue for.
4. Use proper referencing and citing formats: for citing in the body of the paper and listing as references at the end of the paper. See the citation and referencing sheets.

Suggestions for the **term paper**: In addition to the above!

- Integrate and organize your paper(s) using subtitles. The subtitles may be important issues, notions, and themes, etc.
- Your **conclusions must speak to your introduction** and any questions you posed in the body of the paper.
- Use the services of Bilwrite

Critical Thinking

“Be critical of everything, especially things you agree with.”

Peter Winn (Princeton, Prof. of Latin American History)

Scientific investigation starts with questioning pronouncements of texts and authority figures. The first step to solving problems is also to ask questions. Such questioning is called critical thinking.

“The verb *krino*- means to choose, decide or judge. Hence a *krites* is a discerner, judge or arbiter. Those who are *kritikos* have the ability to discern or decide. The word *krino*- also means to separate (winnow) the wheat from the chaff or that which has worth from that which does not” (Wikipedia).

“Reading, writing, speaking, and listening can all be done critically or uncritically. Critical thinking is crucial to becoming a close reader and a substantive writer. Critical thinking enables one to analyze, evaluate, and restructure our thinking, decreasing thereby the risk of acting on, or thinking with, a false premise” (Wikipedia).

Defining Critical Thinking

(A statement by Michael Scriven & Richard Paul for the National Council for Excellence in Critical Thinking Instruction) - <http://www.criticalthinking.org/aboutCT/definingCT.shtml>



“Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

It entails the examination of those structures or elements of thought implicit in all reasoning: purpose, problem, or question-at-issue; assumptions; concepts; empirical grounding; reasoning leading to conclusions; implications and consequences; objections from alternative viewpoints; and frame of reference. Critical thinking ... is incorporated in a family of interwoven modes of thinking, among them: scientific thinking, mathematical thinking, historical thinking, anthropological thinking, economic thinking, moral thinking, and philosophical thinking.

Critical thinking can be seen as having two components: 1) a set of information and belief generating and processing skills, and 2) the habit, based on intellectual commitment, of using those skills to guide behavior. It is thus to be contrasted with: 1) the mere acquisition and retention of information alone, because it involves a particular way in which information is sought and treated; 2) the mere possession of a set of skills, because it involves the continual use of them; and 3) the mere use of those skills ("as an exercise") without acceptance of their results.

Critical thinking of any kind is never universal in any individual; everyone is subject to episodes of undisciplined or irrational thought. No one is a critical thinker through-and-through, but only to such-and-such a degree, with such-and-such insights and blind spots, subject to such-and-such tendencies towards self-delusion. For this reason, the development of critical thinking skills and dispositions is a life-long endeavor.

Why Critical Thinking?

The Problem: Everyone thinks; it is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed or down-right prejudiced. Yet the quality of our life and that of what we produce, make, or build depends precisely on the quality of our thought. Shoddy thinking is costly, both in money and in quality of life. Excellence in thought, however, must be systematically cultivated.

A Definition: Critical thinking is that mode of thinking - about any subject, content, or problem - in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them.

The Result: A well cultivated critical thinker:

- raises vital questions and problems, formulating them clearly and precisely;
- gathers and assesses relevant information, using abstract ideas to interpret it effectively comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
- communicates effectively with others in figuring out solutions to complex problems.

Critical thinking is, in short, self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem solving abilities and a commitment to overcome our native egocentrism and sociocentrism.”



Overcoming bias (from Wikipedia’s “Critical Thinking”)

“To develop one's critical thinking abilities, one should learn the art of suspending judgment (for example, when reading a novel, watching a movie, engaging in dialogical or dialectical reasoning). Ways of doing this include adopting a perceptive rather than judgmental orientation. One should become aware of one’s fallability by:

1. accepting that everyone has subconscious biases, and accordingly questioning any reflexive judgments.
2. adopting an ego-sensitive and, indeed, intellectually humble stance
3. recalling previous beliefs that one once held strongly but now rejects
4. realizing one still has numerous blind spots, despite the foregoing”

Socratic questions enhance critical thinking. Some typical Socratic questions (Wikipedia):

- “What do you mean by_____?”
- How did you come to that conclusion?
- What was said in the text?
- What is the source of your information?
- What is the source of information in the report?

What assumption has led you to that conclusion?
Suppose you are wrong? What are the implications?
Why did you make that inference? Is another one more consistent with the data?
Why is this issue significant?
How do I know that what you are saying is true?
What is an alternate explanation for this phenomenon?"

AN INTRODUCTION TO CRITICAL THINKING

Steven D. Schafersman, 1991 (<http://www.freeinquiry.com/critical-thinking.html>)

Some characteristics of a good critical thinker:

- “uses evidence skillfully and impartially
- organizes thoughts and articulates them concisely and coherently
- distinguishes between logically valid and invalid inferences
- suspends judgment in the absence of sufficient evidence to support a decision
- understands the difference between reasoning and rationalizing
- attempts to anticipate the probable consequences of alternative actions
- understands the idea of degrees of belief
- sees similarities and analogies that are not superficially apparent
- can learn independently and has an abiding interest in doing so
- applies problem-solving techniques in domains other than those in which learned
- can structure informally represented problems in such a way that formal techniques, such as mathematics, can be used to solve them
- can strip a verbal argument of irrelevancies and phrase it in its essential terms
- habitually questions one's own views and attempts to understand both the assumptions that are critical to those views and the implications of the views
- is sensitive to the difference between the validity of a belief and the intensity with which it is held
- is aware of the fact that one's understanding is always limited, often much more so than would be apparent to one with a non-inquiring attitude
- recognizes the fallibility of one's own opinions, the probability of bias in those opinions, and the danger of weighting evidence according to personal preferences”

“Humans are conditioned from birth to follow authority figures and not to question their pronouncements. Most individuals reach adulthood in this conditioned form. The result of such conditioning is the antithesis of both scientific investigation and critical thinking: individuals lack both curiosity and the skills to perform independent inquiry to discover reliable knowledge. Individuals who think critically can think for themselves: they can identify problems, gather relevant information, analyze information in a proper way, and come to reliable conclusions by themselves, without relying on others to do this for them.”