

Socioeconomic Perspectives on Science and Technology

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Class time: Tu Th 12:30PM - 1:45PM
Course title: Socioeconomic Perspectives on Science and Technology
Office hours: Wednesday 3:00-5:00 pm (or by appointment).
Credits: 3
Class location: Hill Hall 309
Class number (s): Economics 2004/Peace Studies 2004

CENTRAL

QUESTIONS

This trans-disciplinary introductory course gives you a chance to explore how the socioeconomic environment around science and technology shapes human survival and wellbeing. Students will consider basic market principles as well as market failures and relate these principles to the process of science and to scientific innovations as well as the social and economic ramifications of those innovations. The course will be grounded in applying diverse economic and ecological principles to sustainability problems. Examples of topics to be covered include incentives for research, health and environmental equity issues, energy use, exploring the economic and social journeys of common consumer items among others.

Notes: *Because there are no economics prerequisites for this course, I will assume that students have not had exposure to economics, and hence, some of the necessary fundamentals will be covered in the class. You may be not be challenged by the 'economics' material if you have already taken other 2000 or 3000 level Economics or Agribusiness/Agricultural and Applied Economics classes. However, this course will cover many science, technology and sustainability topics in a unique trans-disciplinary way.*

LEARNING OBJECTIVES

Course Objectives: You will apply and practice the oral and/or written communication skills via the following activities

1. Refine the focus of an issue, arrange key points into a cohesive argument, and convey the end result
2. Apply an economic framework through formal and informal writing assignments.
2. Design effective presentations, as well as facilitating and participating in informed discussions.
3. Clarify personal beliefs and values by deconstructing assumptions through reasoning, reflection, and forming purposeful judgments and effective unbiased communication.

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DIVERSITY INTENSIVE STATEMENT

This course satisfies the Diversity Intensive requirement for students in the College of Arts and Sciences by considering the assumptions of science and technology through a socioeconomic lens. For example, market failures such as externalities occur when individual incentives impact others in ways that are not adequately compensated in the market system. Externalities and other market failures have implications for income, racial and gender disparities within the United States and in a global context. Students will learn about the present and potential future role of government in navigating market failures that disproportionately impact disadvantaged people groups. These market failures influence how science is conducted and technology is developed. Scientific processes and technological developments will be analyzed through both social and private costs. Connections between inequality, resource distribution, and environmental externalities will be discussed such as consumer culture, copyright issues, antibiotic resistance, and public health and environmental goods.

COURSE

READINGS

The following text is **required** (available in the Mizzou bookstore)

Wheelan, Charles. 2019. *Naked Economics: Undressing the Dismal Science*. W.W. Norton & Company, New York, New York.

The following text is **required** (available in the Mizzou library on reserve and public libraries. You also may choose to purchase your own copy).

Skloot, Rebecca. 2010. *The Immortal Life of Henrietta Lacks*. Crown Publishing Group. New York, New York.

Additional required reading will be posted on the course Canvas, so please pay attention to the course Canvas page.

COURSE STRUCTURE AND LEARNING

RESOURCES

Student Email: Mizzou offers a student e-mail account for all students. You are responsible for monitoring your student e-mail account.

Use of Electronic Devices: We want to get to know you and cultivate an active learning community, and electronic devices can distract us from this goal. In general, cell phones and computers are NOT to be used in class. We will discuss in class in general why computers for note taking will not contribute to your success in the class. **You will not receive any participation points on any day that you break this rule. Occasionally, we will utilize electronic devices in the class for strategies purposes.**

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Notes: Disability and Academic Honesty and Copyright Laws and Intellectual Pluralism are all included on the Canvas Course site. In addition, students are prohibited from posting any course material (e.g., PowerPoint slides, assignment instructions and responses, guiding questions, papers) online (e.g., Course Hero, StudyBlue websites) and from selling notes to or being paid for taking notes by any person or commercial firm without the express written permission of the professor teaching this course. Doing so will constitute both an academic integrity violation (see above link) and a copyright violation. Violations of copyright laws could subject you to civil penalties and criminal liability. **We reserve the right to submit papers to Turnitin either because of suspicion of plagiarism or to assist building a database of papers to help prevent plagiarism in future semesters.**

Electronic Correspondence: Feel free to e-mail me with questions, but be sure to follow rules of etiquette, using both your name and mine. Please use basic professional courtesy when communicating with your instructor and your classmates.

Technical Assistance: Computer difficulties are not a long-term excuse for non-participation. If you experience problems with your computer and/or Canvas, call the Mizzou IT Help Desk: (573)882-5000. They can talk you through fixing many problems. More information at <http://doit.missouri.edu/about/>

Student Writing Center Assistance: The Writing Center, located in the Student Success Center, offers writing services to all undergraduate students at the University of Missouri. Students can meet with a tutor or submit papers online. Appointments are available from 9-5 Monday-Friday and some evenings. For more information please visit the Writing Center at <http://writery.missouri.edu>

Withdrawal Policy: If a situation arises that prevents the successful completion of this course, please note that it is each student's responsibility to formally withdraw from this course before the deadline passes (check the Registrar's Office for relevant deadlines).

ASSESSMENT OF LEARNING OBJECTIVES_____

Grading Summary: Points are earned in a variety of ways. Grade percentages are A+ = 98-100%; A = 93-97%; A- 90-92%; B+ 87-89%; B 83-86%; B- 80-82%; C+ 77-79%; C 73-76%; C- 70-72%; D+ 67-69%; D 63-66%; D- 60-62%; F 0-59%

Record Keeping: Students are responsible for monitoring their grade progress in Canvas. This is a requirement of the class. Please contact the instructor immediately if you have questions. You need to resolve issues at least 10 days after the particular grade is posted. If you wait until the last few weeks of the semester, it will be difficult to resolve your issues and nearly impossible once the grades are submitted in MyZou.

Submitting Work: Please refer to the Assignment Chart in the syllabus and posted in Canvas for exact due dates. You can turn them in at any time before the due date.

Late Policy: It is imperative that we all practice punctuality and adhere strictly to deadlines for written work as we will have a tight timeline between assignments especially at the beginning of the course. Therefore, written work submitted after the due date will not be accepted. We will try to grade work promptly, so it is best to turn your work on time. You need to plan to turn things in before the deadline to

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avoid technical problems. **In the event of emergencies that interfere with you submitting written work on time, contact me as early as possible (at least three days in advance of the due date), and we'll try to work out a reasonable concession.** I will ask for documentation regarding your situation.

PARTICIPATION/ATTENDANCE

Participation and attendance are an extremely important part of the course. There are 150 points possible in this area (approximately 6 total points each class period). Each day, three points out of the six are counted as attendance and three points are designated for participation beyond just being present.

Attendance: Clearly, you must be present to participate in the entire class. Thus, attendance is mandatory given the participatory nature of the class. If you must be absent from all or part of a class for a legitimate reason, such as a family emergency, religious holiday, or illness, you should tell me in advance. Unless you tell me ahead of time, I will assume that the absence is not excused. It is disruptive to arrive to class late and/or to leave early. Do not ask if you can make up work, especially for unexcused absences. Extra credit is a way to make up for absences if needed. As is University policy, five unexcused class absences may result in a report to the Dean of your college and seven absences of any kind may result in the dropping of your name from the course roster.

Participation: Discussion activities should allow you to further explore the ideas introduced in class, clarify things you have not fully understood, and hear the diverse and interesting points of view held by other students. Please let me know **early** in the semester if the seminar format is particularly hard for you since you will be graded on class participation. Factors that affect your participation points include active engagement in class and discussion, verbal contributions¹, following electronic device policy, non-verbal ways of communicating in the class. You are responsible for leading the discussion on the days you have a discussion starter due. Use your journals as a starting base if you have a difficult time with participation on an ad hoc basis. Certain activities will count heavily in the assessment of participation, such as providing comments for other groups in the presentation.

You need to make at least one intelligent verbal contribution to class at least once every two weeks to receive a passing participation grade in the class.

¹ Class discussion is a valuable skill that needs to be developed through practice. Various techniques will be used to encourage you to speak up and engage your fellow students.

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ASSIGNMENTS OVERVIEW

	Assignment	Point Per Activity	#	Total Points "Possible"	Due Date
1	Guiding Question Quizzes	10	7	70	Random
2a	Mini-Discussion Starter (DS) for All	15	1	15	2/3 Mon. 5:00 pm
2b	Discussion Starter Post Version 1	40	1	40	See Online Schedule
2c	Discussion Starter Post Version 2	55	1	55	See Online Schedule
3	Attendance/Participation	6	30	180	Every class
4	Story of Stuff Assignment				
4a	1st Version for Dress Rehearsal/Peer Review	15	1	15	2/18 Tues. 11:00 am
4b	2nd Version for Instructor Review	30	1	35	2/27 Thurs. 11:00 am
4c	3rd Version to Present	60	1	78	3/31 Tues. 11:00 am
4d	Story of Stuff Reflection	22	1	22	TBA
5	Mid-Term Learning Commentary	40	1	40	3/18 Wed at midnight
6	Final Reflection	35	1	35	5/6/ Wed. 7:00 am
7	Extra Credit				See Syllabus for details

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GUIDING QUESTIONS (GQ)

QUIZZES

Purpose and Content: The purpose of these writing exercises is threefold: 1) To improve your ability to digest scholarly materials and distill their main ideas 2) To serve as an incentive to complete the assigned reading prior to class 3) To function as a launching pad for engaged discussion and other activities in class 4) To gauge participation and active learning in the course 5) To provide an opportunity to revise and deepen your thinking through revision and further reflection in the Mid-term Learning Commentary and Final Reflection

Content: -Respond to guiding questions posted in the online schedule.

-Respond to in-class questions announced in class.

Format: These are informal writing assignments so they will be assessed primarily on the content rather than the writing style and grammar. You are encouraged to be brief. You are welcome to use bulleted phrases if they are clear and offer specific examples so as to explain to a reader outside of the class. We encourage you to type these answers up as they will be useful to you in the larger writing assignments and gives you the opportunity to use them for larger writing assignments (e.g., Story of Stuff, Midterm Reflection, etc.) and also enables you to assemble them for the "Optional Full GQ Collection".

Due Dates and Collection Method:

- Bring your guiding questions every day to class so that you will always be prepared to contribute to class discussion and for possible guiding question quizzes which may be at the beginning or towards the end of class
- Rather than turning them in every day, there will be seven GQ quizzes that build on both the GQs in the online reading and the in-class discussion. If you fill out the GQs beforehand, you can use this material as well as any in-class notes to help you on the quiz. You may not use the reading itself. The lowest of these quiz grades will be dropped to allow for the possibility that you are absent (either excused or unexcused) or having a bad day.

Evaluation Criteria:

1. Demonstrate an understanding of the intent of the readings by clearly mentioned specific lessons learned.
2. Incorporate your informed insights, questions, and opinions into the responses.
3. Push your thinking as far as possible and discuss where you have questions and why. Be thoughtful and humble about what you do and do not know.

Length: It is more important to focus on answering the questions adequately than focusing on length. Because these can be written informally to help guide you; students will vary widely in how concise their answers may be and still adequately answer the question.

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If you are concerned about your guiding question grade or want to demonstrate your diligent efforts throughout the semester...

- A list of supplemental/optional guiding questions (i.e., those guiding questions not included in the Midterm Learning Commentary or Final Reflection) will be provided at the end of the Final Reflection
- If you receive 80% or higher on these supplemental questions, you are able to drop the two lowest GQ quiz scores. If your supplemental guiding questions earn a 90% or higher, you can earn up to 15 extra credit points (See extra credit section and emphasis on rigorous evaluation).

DISCUSSION STARTER _____

Purpose:

- Engage with the course material in a deeper way than in a typical guiding question quiz entry
- Lead/facilitate class discussion
- Model thoughtful reflection and discussion to your peers
- Communicate and learn from others in both small and large groups
- Reflect and revise on your ideas, your peers' ideas, communication skills and writing

Description

Part I. Guiding Questions (See Schedule in Canvas to locate questions for the relevant class day)

- What? Before class every day, you will always be doing guiding questions in this class. The **difference as a discussion leader** is that **you will respond more thoughtfully and submit them in Canvas ahead of time.** You **will also be assigned additional questions** and/or activities to submit to Canvas.
- When? See Discussion Starter schedule and the online schedule for days when you are a discussion leader based on a rainbow coloring system. You will be assigned a color in the rainbow based on the day you are a discussion starter.
 - **due in Canvas at 5:00 pm** the day before your discussion starter
 - **Note: There is a heavy penalty for turning it in late as the instructor needs your input to plan the class so don't wait until the last minute**

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Part II. Lead Small Group Discussion

- Bring your discussion starter that you turned into Canvas the night before in hard copy form and this will serve as a guide to facilitate discussion as well as share what you learned and your questions with the group. You also turned this in Canvas at 5:00 pm the night before.
- Lead small and large group discussion

Part III. Revision

What will you do to successfully revise?

- Address instructor comments on Discussion Starter Version I (see feedback in Canvas - typically posted 24 hours after due date). If you have trouble locating contact Dr. Brock ASAP
- Incorporate your notes from lecture and discussion from this lesson as well as any other class lesson, as well as additional resources posted (i.e., PowerPoint, etc.) on your discussion starter day
- In addition, the instructor may require or suggest additional articles to expand/provide examples to strengthen the revision.
- Reflect on your revision-summarize in your own words how you improved your discussion starter

Evaluation and Further Clarification: Please refer to rubrics in My Grades

Writing Style and Content:

Writing is expected to be at a collegiate level and formal.

Length: Three page absolute minimum; 12 point font 1" inch margins double spaced. Four page absolute minimum for Version 2.

Important Notes:

You do not generally need to coordinate with your fellow discussion starters prior to class.

However, special instructions on the discussion starter posts may be given on the class day prior and/or at the beginning of class your assigned day. Please make sure you know what you need to do.

If you have an emergency and miss the class the day prior to your assigned day, please be sure to contact the instructor or your fellow discussion leaders to make sure you know you understand the instructions.

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STORY OF YOUR STUFF ASSIGNMENT SUMMARY

Please refer to the detailed assignment description posted on the Story of Stuff Resource Page on Canvas

Focus: Pick an item that is important to you and focus on a component of it for the full story

Written- Word document 8 pages per student for WI credit

Oral – PowerPoint 5-7 minutes for individual presentations; 9-13 minutes for two or three students (concise is a good thing)

Logistics: Three Versions. See online schedule for due dates

1. **Connect to class concepts and themes** (3 economic and 2 science/technology concepts)
2. **Personal and/or societal historical significance-** Why this item? Why is it important?
3. **Process-** i.e., extraction/cultivation, production, distribution, consumption, disposal
4. **Marketing/consumption dimensions-** e.g., emotional marketing
5. **Human dignity/community dimensions-** e.g., labor, access, effects on human communities
6. **Environmental issues** – both local and global
7. **Context** –How does the product compare with substitutes in the above content areas?
8. **Make it interactive-** 3 questions for the audience that connects to class content
9. **Reflection on process-** successes and struggles with research, reflection on improvement.
10. **Bibliography** –3 peer-reviewed articles required. In-text citations required

MIDTERM LEARNING

COMMENTARY

In the middle of the course, you will respond to prompts that will either be the exact guiding questions posed earlier in the semester or will directly build on those guiding questions to give you an opportunity to revise, build and synthesis your ideas. These questions will relate both to the content of the class as well as to communication and writing skills that we have discussed and implemented in the class.

FINAL REFLECTION

At the end of the course, you will respond to some reflection questions to give you an opportunity to think more about the course objectives listed earlier in the syllabus. These questions will relate both to the content of the class as well as to communication skills that we have discussed and implemented in the class.

Due Date: You will turn them in Canvas before 7:00 am on the last Wednesday of the semester: You need to be present to receive credit for the reflection as part of the exercise is the discussion that we will have in class based on your thoughtful insights.

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EXTRA CREDIT

There are several options for extra credit. You can only earn an absolute maximum of 30 points with any combination of the options below.

1. Supplemental Guiding Questions- See Guiding Question section earlier in the syllabus.
2. Connect the Class Lesson for the day with Current Events or Music- If you can bring in/send me a news clip or piece of music that connects to the reading and topic for the day. You can also receive extra credit (up to 5 points for either contribution)
3. Raise the Instructor's Student IQ-Individuals can receive extra credit points if they do an introductory meeting discussing their student IQ sheet. Details given in class
4. Constructive Critique-If you can give constructive feedback of the class which enhances the educational experience for all of us, you can receive some extra credit. You can send me an email and outline the details of your suggestion. I may ask for clarification. If it is something which will improve the course and if it is something I can implement this semester or in a future semester, you can earn up to 10 extra credit points depending on the nature of the suggestion.
5. Henrietta Lacks Book Extra Credit Discussion Starter- Everyone will be reading selected pieces of *The Immortal Life of Henrietta Lacks* This is an excellent book and many students have really enjoyed learning from this book. You are encouraged to do an extra credit discussion starter on this book. You would need to turn it in Canvas at 5:00 pm before the first day of the book discussion. The format would be similar to a regular discussion starter. Twenty points possible.
6. Other Extra Credit Opportunities- There may be other extra credit opportunities that are discussed in class

Please note that these are extra credit projects all require additional time for the instructor to review so the quality needs to be superior in quality. Projects will be graded rigorously given that they are extra credit.