

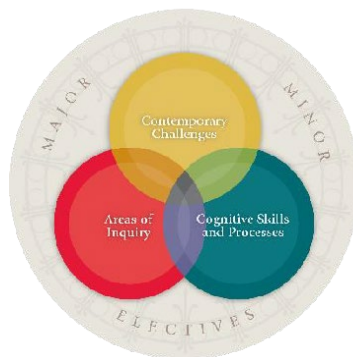
**Energy and Society**  
**11:374:175**  
**SEMESTER YEAR**  
**Time; Location**

Dr. Rachael Shwom   shwomrac@sebs.rutgers.edu  
OFFICE HOURS

Our lives, homes, workplaces, and whole societies are highly dependent upon a constant flow of energy – we can barely imagine an hour without the use of electricity, natural gas, or gasoline. The amount of energy we use and how it is produced have major impacts on the health of our environment, our economy, and local, national, and international politics. The problems, such as climate change, posed by our current human-energy system highlight the need for us to find new ways of living. But ***how do we change our energy system and what should we change it to?*** To begin to answer this question, we must realize the extent to which our lives are integrated with energy production and consumption. Only then can we realize that changing our energy system is not just an engineering or physics problem, but also a social problem that requires societal changes.

**LEARNING GOALS**

- Identify and describe how societies' historical relationships with energy have shaped the development of nations, economies, and environments across space and time.
- Analyze the current U.S. and global energy production and consumption systems and their environmental, economic, political and social impacts at various scales. (*Areas of inquiry: Social and Historical Analysis – Understand the bases and development of human and societal endeavors across time and place*).
- Apply the different models of decision-making that explain why individual, household, business organizations, and governments make the decisions they do about energy consumption and production.
- Evaluating the appropriate analytical tools and approaches for analyzing energy technologies and changing individual, household, business, and governmental decisions about energy production and consumption (*21st Century Challenges – b - Analyze a contemporary global issue from a multidisciplinary perspective*).



### **How Will We Learn About Energy & Society?**

In this class, we will learn about the relationships between energy and society by engaging with readings, lecture materials, films, active online discussions, periodic class assignments and a mini-research project to improve your understanding of our current human-energy system and how we can change it. This class is a 100 level class and is meant to be an accessible introduction to human-energy systems. However, it will require a reasonable commitment of your time to complete the readings and assignments thoroughly. You should expect doing 3 hours of work for 1 credit hour and so 9-10 hours of work per week. Some weeks' readings will be easier than others. Live lecture accompanied by recorded lectures and video clips will follow up and reinforce these key concepts and skills by introducing different examples and case studies. All required readings and materials will be posted at <https://canvas.rutgers.edu/portal>. There is no book to purchase.

In the first half of the class, we will learn about the current human-energy system and the individual, household, organizational, and institutional decisions that constitute the human-energy system. We'll learn about the competing theories to explain why we make the energy decisions we do and the extensive impacts of those decisions. In the second half of the class, we will learn and apply the tools needed for analyzing and changing our human-energy system at multiple levels. The ultimate objective of these sections is for you to be able to demonstrate a competent well-developed understanding of our current human-energy system, its impacts through quizzes, discussion boards, and conducting a decision analysis.

### **How Will You Be Evaluated ?**

<u>Assignments</u>	
Weekly activities/quizzes	40%
Mid-term Exam	15%
Energy and Society Topic Video	30%
Final Exam	15%

Your grade will be based upon several different kinds of assessments of your knowledge of and ability to apply class lessons.

In-class exercises and quizzes (40%): There will be weekly exercises such as data analysis activities and comprehension quizzes on readings and lecture. They will be posted in canvas under assignments and will be due by the end of each week that they are assigned for.

Mid-term and Final Exams (30%; 15% each): There will be a mid-term and final exam for this class – each worth 15% of your grade. The exams will be open materials and timed. They will be non-cumulative.

Energy and Society Video Final Project (30%): For your final project you will be asked to identify an energy and society topic of interest to you. You will then be asked to make a 7-8 minute explainer video that includes your own designed data infographic on that energy and society topic.

### **Rules**

To contact professor with questions or issues, please use email with “Energy and Society” in subject. Please use your Rutgers email address or it may not make it through the Spam filter. Expect that there may be a 24 hour turn-around on emails during working days but not holidays or weekends. If you do not receive a response to

**your email after 24-48 hours, please resend – despite our best efforts, email does not always work perfectly and your professor might lose track.**

Late work: In this class we encourage you to be proactive and act like an adult if you can't meet a deadline. If you notify the professor ahead of a due date, I will work with you to help you set an appropriate deadline and extension. However, if you miss an assignment without talking with me you will lose a half point for each calendar day it is late unless qualified under Rutgers qualified absence (religious observance; death in the family; illness).

Contesting a Grade: If you contest a grade you must email Dr. Shwom. Provide the argument and cite any readings/lecture materials that support your argument. Dr. Shwom will consider your argument and notify you if you get credit or not.

Accommodations for disabilities: Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation:

<https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>

## **ACADEMIC INTEGRITY**

Enter optional text here or delete this box. Below is required

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.

- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

**This class values diversity equity and inclusion and will insist upon:**

- Respect for classmates and their identities
  - Diversity of students' experiences and ideas
  - The historical context and possible biases of the subject area

If you encounter issues where DEI has not been attained please contact the Office of Academic Programs and/or <http://inclusion.rutgers.edu/report-bias-incident>

**STUDENT WELLNESS SERVICES**

**Counseling, ADAP & Psychiatric Services (CAPS)**

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ [www.rhscaps.rutgers.edu/](http://www.rhscaps.rutgers.edu/)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

**Violence Prevention & Victim Assistance (VPVA)**

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

**Disability Services**

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are

officially enrolled, participate in an intake interview, and provide documentation:  
<https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at:  
<https://ods.rutgers.edu/students/registration-form>.

**DoSomething** button through Rutgers Dean of Students office:

<http://health.rutgers.edu/do-something-to-help/>

**Wellness Coaching** through Rutgers HOPE:

<http://health.rutgers.edu/education/hope/wellness-coaching/>

**Self-Help Apps** found on the Rutgers Student Health website:

<http://health.rutgers.edu/education/self-help/self-help-apps/>

**NJ Hopeline** - (1-855-654-6735) | **National Suicide Hotline** - (1-800-273-8255)

## **BASIC NEEDS RESOURCES**

Any student who has difficulty affording groceries or accessing sufficient food, or who lacks a safe and stable place to live, is urged to contact the Rutgers Student Food Pantry and/or the Dean of Students (details below). Furthermore, please notify the professor if you are comfortable doing so, as they may be able to provide additional support.

### **Rutgers Student Food Pantry**

848-932-5500 / College Ave Student Center, Room 115 (126 College Ave) /

<http://ruoffcampus.rutgers.edu/food/>

Check their website for hours and additional locations. The Rutgers Student Food Pantry is dedicated to helping all Rutgers students in need of food, no questions asked. Students will be provided with groceries that typically last about one week.

### **Dean of Students Office**

848-932-2300 / 88 College Avenue, New Brunswick, NJ 08901 /

<http://deanofstudents.rutgers.edu/>

Mon-Fri, 8:30am-5:00pm

The Dean of Students Office at Rutgers University-New Brunswick provides solutions, services, and support to help students navigate Rutgers University. The Office serves as a student support network by providing advocacy, problem resolution, and critical incident intervention for those times when additional assistance is needed. Please call to schedule an appointment to meet with a representative from the Dean's office.

DATE	READINGS AHEAD OF TIME	CLASS OBJECTIVES
<b>INTRODUCTION TO CLASS AND BASIC CONCEPTS</b>		
Day1	1) The syllabus with Dr. Shwom's class and life advice	Who are we? What will we learn? And how will we learn it?!!
Day 2	Sieferle, R.P. 1990. "The Energy System – A Basic Concept of Environmental History" in <i>The Silent Countdown – Essays in European Environmental History</i>	What is a Systems Perspective on Energy and Society?
Day 3	1) Heede R. 2014. Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010 <i>Climatic Change</i> 122: 229-241.	The unequal history of energy, emissions, and development
<b>PAST, PRESENT, AND FUTURE OF COAL</b>		
Day 4	"The Coal Mining Massacre America Forgot The mountains of southern West Virginia are riddled with coal—and bullets" <i>Smithsonian</i> . "Chapter 3: The Social Equality Wedge in Alabama 1880-1908" in Lewis, Ronald L. <i>Black coal miners in America: Race, class, and community conflict, 1780-1980</i> . University Press of Kentucky, 1987. (excerpt)	Past of Coal: How did coal change work and communities?
Day 5	1) Miller, Carol J. "For a Lump of Coal & a Drop of Oil: An Environmentalists Critique of the Trump Administration's First Year of Energy Policies." <i>Virginia Environmental Law Journal</i> 36 (2018): 185. Read pages 225-234 (section IV on coal) 1a) Kolstad CD. <i>What Is Killing the U.S. Coal Industry?</i> Stanford Institute for Economic Policy Research Policy Brief May 2017, 2017.	Present and Future of coal: What is the present and future of coal in the US?
Day 6	2) "African countries plan to build dozens of coal-fired power stations" <i>The Economist</i> . July 25, 2019 China article	What is the future of coal around the world?
<b>PAST, PRESENT AND FUTURE OF OIL</b>		

Day 7	<p>Wright, Lawrence. 2018. "The Dark Bounty of Texas Oil" <i>The New Yorker</i>.</p> <p>Podcast on Fracking and shale, "Gamechanger"  <a href="https://www.thisamericanlife.org/440/game-changer">https://www.thisamericanlife.org/440/game-changer</a></p> <p>Sherwood, Yvonne, 2019 "The Political Binds of Oil versus Tribes" Open Rivers: Rethinking Water Place and Community  <a href="https://editions.lib.umn.edu/openrivers/article/the-political-binds-of-oil-versus-tribes/">https://editions.lib.umn.edu/openrivers/article/the-political-binds-of-oil-versus-tribes/</a></p>	Past: What did the discovery of shale gas/oil mean for communities?
Day 8	<p>Hughes, D. M. (2017). <i>Energy without conscience: oil, climate change, and complicity</i>. Duke University Press. (excerpt)</p> <p>Friedman, Thomas L. 2008. "Fill 'Er Up with Dictators: Petropolitics" pp.77-110 in Hot, Flat and Crowded Farar, Sraus and Giroux: New York.</p>	<p>Past: How did the oil trade transform the economy for slavery?</p> <p>Past and Present: How does oil influence the political development of nations?</p>
Day 9	<p>1) Grove, Andy. 2008. "Our Electric Future" The American, The Journal of The American Enterprise Institute</p> <p>2) Yergin, Daniel. "Ensuring energy security." FOREIGN AFFAIRS-NEW YORK- 85.2 (2006): 69.</p>	Future: What is the Future of the Electric Vehicle?
<b>PAST PRESENT AND FUTURE OF NUCLEAR</b>		
Day 10	<p>1) Pidgeon, N. (2011). In retrospect: Normal accidents. <i>Nature</i>, 477(7365), 404-405.</p> <p>2) Zeller, T. "Do we Need to go Nuclear on Climate Change?" May 28, 2015. Forbes.</p> <p>Onishi, Norimitsue. 2011. "Safety Myth' Left Japan Ripe for Nuclear Crisis" New York Times. (Professor Shwom traveling)</p>	<p>Present: What role if any does nuclear play in solving climate change?</p> <p>Frontline's <i>Nuclear Aftershocks</i>: What are the impacts of Fukushima?</p>
<b>PAST, PRESENT AND FUTURE OF RENEWABLES</b>		
Day 11	<p>1) Smil, Vaclav. "The long slow rise of solar and wind." <i>Scientific American</i> 310.1 (2014): 52-57.</p> <p>1a) Warburg, P. 2019. "An introduction to the state of solar power in the U.S." Yale Climate Connections.</p> <p>2) Stokes, L.C. and Breetz, H.L., 2018. Politics in the US energy transition: Case studies of solar, wind, biofuels and electric vehicles policy. <i>Energy Policy</i>, 113, pp.76-86.</p> <p>2a) How Conservative Texas Took The Lead in U.S. Wind Power by Roger Drouin.</p>	<p>What are the technical and political potentials for renewables?</p> <p>What are the political factors of solar policies?</p>

Day 12	<p>Parkinson, J. 2009. "The Not So Sunny Side of Solar Panels" Voice of San Diego.</p> <p>Cha, Ariana Eun Jung. 2008. "Solar Energy Firms Leave Wastes Behind in China" Washington Post</p>	How do green energies operate in global capitalism?
<b>GETTING TO DESIRABLE ENERGY FUTURES</b>		
Day 13	<p>1) Dietz, T. 2003. "What is a Good Environmental Decision?" Human Ecology Review 10:1:33-39.</p> <p>2) Clemen, R.T. Reilly. T. 1999. "Chapter 1 – An Introduction to Decision Analysis" in Making Hard Decisions.</p>	<u>How do we know which energy decision is the best (for us/for society)?</u>
Day 14	<p>1) Environmental Protection Agency. 2006. "Chapter 1 – Life Cycle Assessment" from Life Cycle Assessment: Principles and Practice.</p> <p>2) Environmental Protection Agency. 2009. "EPA Life Cycle Analysis of Greenhouse Gas Emissions from Renewable Fuels."</p>	<u>How do we assess the environmental impacts of different energy choices?</u>
Day 15	<p>1) Schumacher, E.F. 1977. "Technology with a Human Face" from Small is Beautiful: Economics as if People Mattered</p> <p>1a) Stephens, JC. 2019. "Energy Democracy: Redistributing Power to the People Through Renewable Transformation" Environment: Science and Policy for Sustainable Development 61(2): 4-13.</p> <p>2) <a href="https://www.stitcher.com/podcast/electorette/e/59767371">https://www.stitcher.com/podcast/electorette/e/59767371</a></p> <p>2a) <a href="https://www.theguardian.com/commentisfree/2019/sep/10/jobs-environment-unions-green-new-deal">https://www.theguardian.com/commentisfree/2019/sep/10/jobs-environment-unions-green-new-deal</a></p>	<p><u>How can our energy decisions serve humankind?</u></p> <p><u>Can unions be a force for a just transition</u></p>
Day 16	<p>1) Wynes, S., &amp; Nicholas, K. A. (2017). The climate mitigation gap: education and government recommendations miss the most effective individual actions. <i>Environmental Research Letters</i>, 12(7), 074024.</p> <p>2) White, K., Hardisty, D. J., &amp; Habib, R. (2019). The Elusive Green Consumer People say they want sustainable products, but they don't tend to buy them. Here's how to change that. <i>Harvard Business Review</i> 97(4)</p>	<p><u>What are the consumption norms we have and how might we change them?</u></p> <p><u>Transforming Household Consumption: The Thanksgiving Edition</u></p>
Day 17	Bell, Shannon Elizabeth. <i>Our roots run deep as ironweed: Appalachian women and the fight for environmental justice</i> . University of Illinois Press, 2013. (excerpts)	<u>What drives people toward activism?</u>
Day 18	Practicing decision analysis and ICA	