



ENERGY 190FS: History of Energy

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IMPORTANT DEADLINES

#	Date	Task
1	Sept. 8	ID Quiz #1
2	Sept. 10.	Book Club Meeting #1
3	Sept. 29	Project Pitch
4	Oct. 13	ID Quiz #2
5	Oct. 15	Book Club Meeting #2
6	Nov. 3	ID Quiz #3
7	Nov. 5	Book Club Meeting #3
8	Nov. 10	Slide Decks
9	Nov. 12	Peer Reviews
10	Nov. 17	Memoranda

COURSE RESOURCES



[Tom J.
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[Sakai](#)



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[Duke Energy
Initiative](#)



History of Energy

ENERGY 190FS

Duke University

Fall 2020
Tuesday & Thursday, 1:45-3:00pm
French Family Science Center 2237

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[Virtual Office Hours](#)

SYNOPSIS

“So with this novel,” Upton Sinclair declared in the preface to *Oil!*, “a picture of civilization in Southern California, as the writer has observed it during eleven years’ residence.” This fictional picture reflected with uncanny precision a very real and tumultuous oil boom that took place in California during the early twentieth century. Indeed, Sinclair ended his novel with a plea for forgiveness from its main protagonist, as if the character had unleashed on the world destructive forces beyond anyone’s control. Petroleum, Sinclair knew, had truly altered the course of all human civilization forever.

This history course traces not only the events portrayed in Sinclair’s novel but also the entirety of human experience with energy from bygone epochs of muscle-powered machines to fossil- and fissile-fueled modernity. Adopting the theme of energy transitions as a chief organizing principle, it encompasses three distinct units based on different types of energy sources and tied altogether by a collaborative research project. Major themes include industrialization, globalization, and decarbonization.

OBJECTIVES

#	<i>Bloom Level</i>	<i>Description</i>
1	Knowledge	Recall the major themes, questions, and research agendas of the field of energy studies .
2	Comprehension	Describe the components of the modern energy supply sector , including extraction, storage, and distribution processes.
3	Application	Illustrate how the modern energy supply sector fits into a broader energy system encompassing uses of energy flows.
4	Analysis	Identify the universal patterns of humanity’s major energy transitions from prehistory through the present.
5	Evaluation	Assess the prospects for a global energy transition from fossil-based to zero-carbon by the end of the present century.
6	Creation	Craft a distinct portion of a congressional briefing on a salient topic related to the global history of energy.
7	* Collaboration	Work together with three peers to conceive, create, and deliver the same congressional briefing above.

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ACCOUNTABILITY

This course is built around three multipart tasks. Specialized guides and rubrics for each will be distributed separately throughout the term. All grades will be calculated using a standard, 4.0 [grading scale](#).

#	Task	% Final Grade	Occurrences
1	Participation	30%	
	In-Class Discussion	15%	∞
	Longhand Notes	15%	10
2	History Boot Camp	30%	
	Mini-Essays	10%	3
	ID Quizzes	10%	3
	Book Club	10%	3
3	* Team Research Project	40%	
	Pitch	10%	1
	Slide Deck (PowerPoint)	15%	1
	Memorandum (Research Paper)	15%	1

EXTRA CREDIT

This course offers all students three opportunities to earn extra credit.

#	Opportunity	Requirement	Bonus
1	Punditry Practice	First, find a written article about a salient energy topic in a credible news outlet like The New York Times , Mother Jones , or BuzzFeed News . Second, prepare a five-minute oral presentation with at least three questions connecting the article to a specific course topic. Third, notify Tom about your presentation via email <u>at least one hour</u> before the class begins.	3 points to the in-class discussion grade
2	Energy Initiative (EI) Virtual Events	First, register for an <u>any</u> EI virtual event. Second, attend the event for the duration. Third, email Tom a full screenshot of the Zoom call or presentation showing your face along with a three-sentence caption <u>within six hours of the event's end</u> . Captions can include your reflections or a quote from a speaker.	1 point (max 3) to the final grade
3	* Team Research Project Competition	Earn the highest score in the class for your Team's end-of-semester presentation from a panel of three volunteer judges.	5 points to the final grade

EXPECTATIONS

All activities in this course revolve around five core policies.

1. **Attendance**

- 1.1. Attendance in every class along with active and respectful engagement in all class discussions are required.
- 1.2. Excessive tardiness, including arrival more than five minutes after class begins without prior notification, counts as an absence.
- 1.3. Notify Tom of any absences, especially [absences for health reasons](#), beforehand whenever possible.

2. **Academic Integrity**

- 2.1. All written tasks must be completed before class time on the due date unless otherwise specified or prior arrangements are made.
- 2.2. All written work must give proper credit where credit is due, enabling readers to see proper attributions to all sources mentioned, quoted, and discussed.
- 2.3. So that there is no doubt, review the university's resources on [avoiding plagiarism](#) before starting any writing assignment.
- 2.4. For useful writing tips, consult tutors virtually through the [TWP Writing Studio](#).
- 2.5. Any concern about intellectual dishonesty will result in a formal investigation by an Academic Dean. Therefore, remember the [Duke Community Standard](#).

3. **Electronics**

- 3.1. Because studies like [this one](#) and [this one](#) and [this one](#) show that students benefit more from taking notes by hand, the use of laptops or tablets during class is generally prohibited unless accommodations are needed. (See #4.)
- 3.2. However, the use of electronics will be permitted at regular intervals during specific research activities.
- 3.3. Cell phones in particular will not be used for any reason during class time without prior arrangement.

4. **Accommodations**

- 4.1. Since all students have the [right](#) to have certain accommodations met, it's best to notify Tom about any needs as soon as possible.
- 4.2. Every possible effort will be made to provide the necessary assistance in a timely and confidential manner.
- 4.3. All students requesting accommodations must be registered with Duke's [Disability Management System](#).

5. **Syllabus Changes**

- 5.1. Given the state of the world at the moment, Tom reserves the right to modify any part of this syllabus at any time for any reason.
- 5.2. Substantial changes will be kept to a minimum.
- 5.3. Students will be notified of any changes as soon as possible.

UNIT I: FORCES OF NATURE

#	Date	Topic	Readings ¹	Task
1	Tues., Aug. 18	Introduction	N/A	
2	Thurs., Aug. 20	Civilization	<p>* Norman Maclean, "Logging and Pimping and 'Your Pal, Jim'," in <i>A River Runs through It and Other Stories</i> (Chicago: University of Chicago Press, 2017), 121-41. [Sakai]</p> <p>† Margaret Elley Felt, "I'm a Gyppo Logger's Wife." <i>Saturday Evening Post</i> 225, no. 9 (August 30, 1952): 33, 57-59.</p>	Longhand notes #1
3	Tues., Aug. 24	Transitions	<p>* Vaclav Smil, Energy Transitions: Global and National Perspectives 2nd ed., (Santa Barbara, CA: Praeger, 2017), 23-49.</p> <p>† Thomas Urquhart, "On the Use of Petroleum Refuse as Fuel in Locomotive Engines." <i>Proceedings of the Institution of Mechanical Engineers</i> 35, no. 1 (August 1884): 272-81.</p>	Longhand notes #2
4	Thurs., Aug. 27	Fire	<p>* Michael Williams, Deforesting the Earth: From Prehistory to Global Crisis, An Abridgement (Chicago: University of Chicago Press, 2006), Chapter Two.</p> <p>† James Cook, A Voyage Towards the South Pole and Round the World, Vol. 1 (London: W. Strahan and T. Cadell in the Strand, 1777), 107-14.</p>	Longhand notes #3
5	Tues., Sept. 1	Muscle	<p>* Virginia DeJohn Anderson, Creatures of Empire: How Domestic Animals Transformed Early America (New York: Oxford University Press, 2004), Chapter One.</p> <p>† "From the London Oracle: A Plan for Driving the Live-Stock." <i>The Philadelphia Gazette & Universal Daily Advertiser</i>, June 8, 1798, 1-2.</p>	Mini-Essay #1

¹ Most readings for this course consist of paired [primary and secondary sources](#). Titles marked with an asterisk (*) indicate a secondary source while those marked with a dagger (†) indicate a primary source. Students are encouraged to begin with *secondary* sources.

UNIT I: FORCES OF NATURE CONT'D

#	Date	Topic	Readings	Task
6	Thurs., Sept. 3	Wind & Water	<p>* Delores Bird Carpenter, <i>Early Encounters: Native Americans and Europeans in New England, from the Papers of W. Sears Nickerson</i> (East Lansing, MI: Michigan State University Press, 1994), 102-6.</p> <p>† Charles W. Livermore, <i>The Ancient Wreck: Loss of the Sparrow-Hawk in 1626</i> (Boston: Alfred Mudge & Son, 1865), Chapters One and Three</p>	Longhand notes #4
7	Tues., Sept. 8	Recap #1	Thomas Frank, "8 Better Ways to Make and Study Flash Cards," College InfoGeek, last modified August 19, 2020.	ID Quiz #1
8	Thurs., Sept. 10	Book Club Meeting #1	Vaclav Smil, <i>Energy and Civilization: A History</i> (Cambridge, MA: The MIT Press, 2017).	

UNIT II: FOSSIL & FISSILE FUELS

#	Date	Topic	Readings	Task
9	Tues., Sept. 15	Carbon Communities	<p>* Simon Cordery, Mother Jones: Raising Cain and Consciousness (Albuquerque, NM: University of New Mexico Press, 2010), Chapter Five.</p> <p>† H. W. Chase, The Great Disaster at Avondale Colliery (Scranton, PA: J. B. Furman, 1869), 1-13.</p>	Longhand notes #5
10	Thurs., Sept. 17	Nuclear Landscapes	<p>* Traci Brynne Voyles, Wastelanding: Legacies of Uranium Mining in Navajo Country (Minneapolis, MN: University of Minnesota Press, 2015), Chapter Two.</p> <p>† Doug Brugge, Timothy Benally, and Esther Yzzie Lewis, "Into the Nuclear Age as a Hand Mucker: Interview with Navajo George Tutt, Former Uranium Miner," <i>New Solutions</i> 9, no. 2 (1999): 195-206.</p>	Longhand notes #6
11	Tues., Sept. 22	Petroleum	<p>* Robert McNally, Crude Volatility: The History and the Future of Boom-Bust Oil Prices (New York: Columbia University Press, 2017), Chapter One.</p> <p>Team Reading:</p> <p>1) † John D. Rockefeller, Random Reminiscences of Men and Events (New York: Double, Page & Company, 1909), Chapter Four.</p> <p>2) † Ida M. Tarbell, The History of the Standard Oil Company, Vol. 1 (New York: McClure, Phillips & Co., 1905), Chapter Four.</p>	Longhand notes #7
12	Thurs., Sept. 24	Pitch Day Prep	Chris Anderson, "How to Give a Killer Presentation," <i>Harvard Business Review</i> 91, no. 6 (June 2013): 121-25.	
13	Tues., Sept. 29	Pitch Day	Mona Bushnell, "How to Prepare for a Presentation, Even if You're Nervous," <i>Business News Daily</i> , November 14, 2018.	Pitch
14	Thurs., Oct. 1	Teamwork Session #1	Wayne C. Booth et al, The Craft of Research , 4th ed. (Chicago: University of Chicago Press, 2016), 3-26.	Team Charter (in-class)

UNIT II: FOSSIL & FISSILE FUELS CONT'D

#	Date	Topic	Readings	Task
15	Tues., Oct. 6	Electrification	<p>* Audra J. Wolfe, "How Not to Electrocute the Farmer': Assessing Attitudes Towards Electrification on American Farms, 1920-1940," <i>Agricultural History</i> 74, no. 2 (Spring 2000): 515-29.</p> <p>† David Cushman Coyle, ed., Electric Power on the Farm: The Story of Electricity... (Washington, D.C.: U.S. GPO, 1936), Chapter Four.</p>	Mini-Essay #2
16	Thurs., Oct. 8	Blackout	<p>* David E. Nye, When the Lights Went Out: A History of Blackouts in America (Cambridge, MA: MIT Press, 2010), Chapter Three.</p> <p>† National Opinion Research Center, Public Response to the Northeastern Power Blackout (Chicago: University of Chicago, October 1966), Chapter Four.</p>	Longhand notes #8
17	Tues., Oct. 13	Recap #2	N/A	ID Quiz #2
18	Thurs., Oct. 15	Book Club Meeting #2	Kate Brown, Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters (New York: Oxford University Press, 2013).	

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UNIT III: RENEWABLES

#	Date	Topic	Readings	Task
19	Tues., Oct. 20	Teamwork Session #2	Anne Lamott, " Shitty First Drafts ," in <i>Language Awareness: Readings for College Writers</i> , 9th ed., Paul Eschholz, Alfred Rosa, and Virginia Clark, eds. (Boston: Bedford/St. Martin's, 2005): 93-96.	Team Report (in-class)
20	Thurs., Oct. 22	Geothermal Energy	* Ingrid Stober and Kurt Bucher, Geothermal Energy: From Theoretical Models to Exploration and Development (Berlin: Springer-Verlag, 2013), Chapter Two. † Irene Kiefer, " Earth Boils Below While We Scratch the Surface for Fuel ," <i>Geothermal Energy</i> 3, no. 1 (January 1975): 36-44.	Longhand notes #9
21	Tues., Oct. 27	Teamwork Session #3	Center for Teaching, Vanderbilt University, " Making Better PowerPoint Presentations ," CFT Teaching Guides, accessed January 28, 2019.	Mini-Essay #3
22	Thurs., Oct. 29	Photovoltaics	* David Ockwell and Rob Byrne, Sustainable Energy for All: Innovation, Technology, and Pro-Poor Green Transformations (New York: Routledge, 2016), Chapter Four. † United Nations, " Report of the United Nations Conference on New and Renewable Sources of Energy, Nairobi, 10 to 21 August 1981 ." (UN, 1981), Chapter Four.	Longhand notes #10
23	Tues., Nov. 3	Recap #3	N/A	ID Quiz #3
24	Thurs., Nov. 5	Book Club Meeting #3	Brandon N. Owens, The Wind Power Story: A Century of Innovation that Reshaped the Global Energy Landscape (Hoboken, N.J: John Wiley & Sons, 2019).	
25	Tues., Nov. 10	Team Presentations	Dom Barnard, " Guide for Giving a Group Presentation ," <i>Virtual Speech</i> , February 21, 2018.	Slide Decks
26	Thurs., Nov. 12	Debrief	Victor Yocco, " Dwelling on the Past: The Importance of Project Retrospectives (Part 1) ," <i>Smashing Magazine</i> , September 5, 2017.	Peer reviews
27	Tues., Nov. 17	Wrap Up	* No class meeting!	Final memos

FURTHER READING

Books

- Andrews, Thomas G. *Killing for Coal: America's Deadliest Labor War*. Cambridge, Mass.: Harvard University Press, 2008.
- Bernstein, Jeremy. *Plutonium: A History of the World's Most Dangerous Element*. Washington, D.C.: Joseph Henry Press, 2007.
- Coll, Steve. *Private Empire: ExxonMobil and American Power*. New York: Penguin Press, 2012.
- Gustafson, Thane. *The Bridge: Natural Gas in a Redivided Europe*. Cambridge, Mass.: Harvard University Press, 2020.
- Shamir, Ronen. *Current Flow: The Electrification of Palestine*. Stanford, Calif.: Stanford University Press, 2013.
- David M. Turner, Daniel Blackie. *Disability in the Industrial Revolution: Physical Impairment in British Coalmining, 1780-1880*. Manchester, UK: Manchester University Press, 2018.

Articles

- Barak, On. "Three Watersheds in the History of Energy." *Comparative Studies of South Asia, Africa and the Middle East* 34, no. 3 (2014): 440–53. <https://doi.org/10.1215/1089201x-2826025>.
- Calvert, Kirby, Kirsten Greer, and Margot Maddison-MacFadyen. "Theorizing Energy Landscapes for Energy Transition Management: Insights from a Socioecological History of Energy Transitions in Bermuda." *Geoforum* 102 (June 1, 2019): 191–201. <https://doi.org/10.1016/j.geoforum.2019.04.005>.
- Clark, Nigel, and Kathryn Yusoff. "Combustion and Society: A Fire-Centred History of Energy Use." *Theory, Culture & Society* 31, no. 5 (September 1, 2014): 203–26. <https://doi.org/10.1177/0263276414536929>.
- Huber, Matthew T, and James McCarthy. "Beyond the Subterranean Energy Regime? Fuel, Land Use and the Production of Space." *Transactions of the Institute of British Geographers* 42, no. 4 (December 1, 2017): 655–68. <https://doi.org/10.1111/tran.12182>.
- Mohsin, Anto. "Lighting 'Paradise': A Sociopolitical History of Electrification in Bali." *East Asian Science, Technology and Society: An International Journal* 11, no. 1 (February 17, 2017): 9–34. <https://doi.org/10.1215/18752160-3489218>.