

**History 235: Drugs, Chemicals, & Health**  
**Following substances through economies, environments, and bodies**

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Meeting via Zoom, T/Th 10:15-11:30am (Durham time; see Sakai for Zoom links)

Office Hours: T/W, 1:00pm-3:00pm (Durham time; see Sakai for Zoom link)

This course asks how we might think historically about synthetic chemicals, natural alternatives, and the benefits and hazards they pose to human health, society, and environments. Combining cultural, political, and economic history with interdisciplinary environmental history and science & technology studies, we will follow historical “biographies” and “genealogies” of drugs and chemicals through economies, environments, and bodies, from cellular to planetary scales, comparing and connecting different global settings (including North Carolina).



*Sugar cane and refinery, Mississippi River corridor, Louisiana, 1998*

[Misrach and Orff, *Petrochemical America* (New York: Aperture, 2012), 51. Photo by Richard Misrach.]

**Acknowledgements:** Duke University occupies ancestral lands of the Shakori, Eno and Catawba peoples. Duke was financed by tobacco and electrical power, industries profiting from violent taking of Native land, waters, and knowledge, as well as from products causing great harms to health and environments. Duke has directly and indirectly engaged in racist exclusion, exploitation, and silencing of Black people. This course aims to be responsible to Duke’s history, and to the Indigenous, Black, and other histories lived before, beyond, within, alongside, and despite it, including by the Indigenous people, people of color, and LGBTQ+ people who live and work at Duke and in Durham today. We do so as a step on the “journey to dismantle behaviors, practices, policies and institutions forged out of white supremacy,”<sup>1</sup> in affirmation that Black Lives Matter.

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<sup>1</sup> The Hurston-James Society, “Juneteenth: An Open Letter to Duke,” *The Chronicle*, 18 June 2020, <https://www.dukechronicle.com/article/2020/06/juneteenth-an-open-letter-to-duke>.

**Syllabus subject to change at instructor’s discretion. See Sakai for latest version.**

This syllabus is a product of many conversations with colleagues, particularly Prof. Nicole Barnes, Prof. Angela Creager, Prof. Michelle Murphy, Prof. Nicholas Shapiro, Prof. Gabriela Soto Laveaga, Prof. Keith Wailoo, and most especially Prof. Ruth Goldstein.

### Course requirements and grading:

- Section participation 20%
- Compound Histories survey 5%
- Compound Histories project
  - Group submissions 3 \* 12.5%
  - Individual submissions (reflecting, connecting, noticing) 3 \* 12.5%

### Course logistics: A typical week of this course will include:

- a) One or more recorded **Zoom mini-lectures** introducing the week's material(s), historical setting(s), and author(s), posted on Sakai. Please watch these first.
- b) **Readings** (including some works of fiction, films, videos, podcasts, newspaper articles, and blog posts), all available digitally via Sakai.
- c) **Tuesday live full-class Zoom lecture + discussion**, recorded and posted on Sakai.
- d) Ongoing **Compound Histories project research**; we'll occasionally ask you to bring project sources to section for discussion.
- e) **Thursday discussion section meetings**, including breakouts for work on your Compound Histories projects. (**Section attendance is required.** You are permitted one "personal day" section absence, no questions asked. Additional absences due to illness, required university activities, or exceptional circumstances will be excused provided you complete a make-up exercise. An additional section will be arranged for students whose time zone makes a 10:15am Durham time meeting infeasible.)

### Section participation: To do your part in making for a productive class, please:

- a) **read** each week's assigned texts.
- b) **post** a brief response question/comment addressing one or more of our weekly readings on your section's Sakai Forum by two hours before class on Tuesday. (This is intended to prime the pump for our collective thinking as each week begins. You may point out something confusing about the reading, draw a comparison to another reading, mention a connection to your Compound Histories research. A couple sentences is enough for full credit; feel free to write more if you'd like.)
- c) bring **Compound Histories project sources** to sections, when applicable;
- d) **attend** section meetings, engaging in discussion as both **speaker** and **listener**;
- e) serve as **section scribe** for one meeting, taking notes on our discussion and posting an informal summary to Sakai.

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**Compound Histories project:** As a semester project, in groups of four or five, you will investigate aspects of the history, life cycle, and beneficial and/or harmful health consequences of a chemical substance. We will carry out this project in three stages, each concluding with a group submission and individual short essays reflecting on your research and drawing connections to our readings, lectures, and section discussions. This project will give you the chance to address your chosen material(s) from a perspective of your choice, drawing on your field of study and/or other scholarly and creative perspectives you'd like to explore. It's going to be totally great. Details at end of syllabus.

**Late submissions:** Except with prior consultation and written consent of instructor, a *\*half letter grade\** (A to A-, A- to B+, etc.) will be deducted from assignments submitted after the deadline listed on the syllabus. An *\*additional half-letter grade\** will be deducted for each additional two days of late submission (including weekends). Questions? Ask! (Please do ask; deadlines are there to support your progress through the course, not to burden you.)

**Collegiality and mutual support:** We will grapple with some disturbing ideas, events, writing, and images, as well as with topics that are likely of significant personal experience for some of us and uncertain or unfamiliar to others. As your instructors, we will do our best to make sure you know what's coming. If you have concerns, please let us know.

We all bring different perspectives, experiences, identities, and concerns to this class. You will all likely (we hope!) disagree with some of the arguments advanced by our authors, by me, and by each other. We ask that you join me in supporting our mutual growth by posing frank questions, presenting sincere arguments, testing uncertain ideas, and listening and responding to each other in a tough-minded spirit of generosity.

**Unforeseen conflicts:** This is a most unusual time. We're committed to being flexible and making accommodations that are fair to you and your fellow students. If you anticipate trouble, please speak with your instructors as soon as possible. The more we can stay ahead of challenging circumstances, the better we'll be able to navigate them.

**Collaboration and academic integrity:** Group project submissions will be evaluated as the collective work of all group members. Individual reflection/connection short essays should reflect your own research, thinking, and writing. You are warmly encouraged to consult with others in and outside of class on all aspects of this project. As a matter of intellectual generosity, please acknowledge especially substantial assistance you receive from anyone other than course instructors by including an "acknowledgements" note in your individual or group submission. This course is subject to the [Duke Community](#)

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Standard—make sure you're familiar with it. If you have questions on collaboration, citation, or appropriate use of sources, please ask!

**Online etiquette:** Like drugs and chemicals (as we will see), online courses and the electronic multitasking they enable are a *pharmakon*—a remedy, a poison, and a scapegoat. With the exception of emergencies, please join me in directing all in-meeting multitasking toward activities that feed into our course (comments in Zoom chat, consulting relevant sources online) rather than distract from it.

As much as is feasible, we ask that you keep your camera enabled during Zoom meetings, join our class from a quiet, distraction-free space, mute your microphone when not speaking, and use whatever combination of headphones, microphone, and other peripherals you need to support clear communication. For technology and accessibility support, please contact the [Academic Resource Center](#), [OIT](#), the [Keep Learning](#) webpage, and/or the Duke [loaner laptop/hotspot application](#).

**Accommodations and accessibility:** We want to do all we can to ensure that this class is accessible, inclusive, and equitable for all students. Please notify us within the first two weeks of class (or as soon as possible thereafter, for concerns arising mid-semester) with information about accommodations that we can provide to ensure accessibility, per the [Student Rights and Responsibilities](#) of the Duke accessibility office. If you have other concerns about classroom inclusiveness, please let us know. We will work with you!

Duke University is committed to providing equal access to students with documented disabilities. Students with disabilities may contact the Student Disability Access Office (SDAO) to ensure your access to this course and to the program. There you can engage in a confidential conversation about the process for requesting reasonable accommodations both in the classroom and in clinical settings. Students are encouraged to register with the SDAO as soon as they begin the program. Please note that accommodations are not provided retroactively. More information can be found online at [access.duke.edu](https://access.duke.edu) or by contacting SDAO at 919-668-1267, [SDAO@duke.edu](mailto:SDAO@duke.edu).



*Spraying DDT in Oregon, 1955.*

[USDA Forest Service, Pacific Northwest Region, State and Private Forestry, Forest Health Protection. Portland Station Collection, image PS-1429; <https://www.flickr.com/photos/151887236@N05/32213742634/>]

**Syllabus subject to change at instructor's discretion. Latest version posted on Sakai.**

**Week 1: Introduction: Mixtures, solutions, and bonds**

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- Timothy Mitchell, "Can the Mosquito Speak?," in *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley: University of California Press, 2002), 25–32 (end of paragraph at top).
- Bernadette Bensaude-Vincent and Jonathan Simon, "Chemistry and Pollution," in *Chemistry: The Impure Science*, 2nd ed. (London: Imperial College Press, 2012), 11-32.
- Jeremy A. Greene and Sergio Sismondo, "Introduction," in *The Pharmaceutical Studies Reader* (Malden, MA: Wiley Blackwell, 2015), 1-2 ("Why study pharmaceuticals?") and 4-10 ("Key themes in pharmaceutical studies").

*Tues, Aug 18: Full class: Following substances on a pharmakon planet*

*Thurs, Aug 20: Full class: Compound histories (project overview and possible topics)*

**\*\*\*Compound Histories Survey due Fri, Aug 21, 5pm\*\*\***

**UNIT 1: MATERIALS IN PLACE, MOLECULES ON THE MOVE****Week 2: Social orders and use disorders: Tobacco**

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- Marcy Norton, "Introduction" and first half of "Experiencing the Sacred and the Social," in *Sacred Gifts, Profane Pleasures: A History of Tobacco and Chocolate in the Atlantic World* (Ithaca: Cornell University Press, 2008), 1-27.
- Nan Enstad, "The Bright Leaf Tobacco Network" and "Conclusion: Called to Account," in *Cigarettes, Inc.: An Intimate History of Corporate Imperialism* (Chicago: University of Chicago Press, 2018), 86-119, 260-268.
- *Primary Source*
  - James F. W. Johnston, "The Narcotics We Indulge In—Tobacco," in [The Chemistry of Common Life](#), vol. 2 (New York: D. Appleton, 1855), 5-35.
- *Short reads and media*
  - Keith Wailoo, "The FDA's Proposed Ban on Menthol Cigarettes," *New England Journal of Medicine* 380, no. 11 (March 14, 2019): 995–97.
  - Rosalyn R. LaPier, "[Why Native Americans Do Not Separate Religion from Science](#)," *The Conversation*, April 20, 2017.
  - "[Tobacco](#)," *Last Week Tonight with John Oliver (HBO)*, 2015.

*Tues, Aug 25: Full class: Drugs in place, drugs in traffic. Guest presentation on searching for Compound Histories sources: Duke librarians Carson Holloway, Rachel Ingold, and Jodi Psoter.*

*Thurs, Aug 27: Sections: Race and chemicals; close-reading historical sources*

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### Traditional Tobacco and Commercial Tobacco

[National Native Network, <http://keepitsacred.itcmi.org/2018/07/nnn-ihs-hpdp-webinar-southwest-tribal-tobacco-coalition/>]

### Week 3: Medicinal plants and synthetic drugs: Quinine & artemisinin

- R. B. Woodward, "Art and Science in the Synthesis of Organic Compounds: Retrospect and Prospect," in *Pointers and Pathways in Research: Six Lectures in the Fields of Organic Chemistry and Medicine*, ed. Maeve O'Connor (Bombay: CIBA of India Ltd., 1963), 22–41.
- Youyou Tu, "Artemisinin—A Gift from Traditional Chinese Medicine to the World (Nobel Lecture)," *Angewandte Chemie International Edition* 55, no. 35 (2016): 10210–26.
- Michelle Murphy, "Alterlife and Decolonial Chemical Relations," *Cultural Anthropology* 32, no. 4 (2017): 494–503.
- *Primary source:*
  - Jacob Bigelow, "Cinchona," in *Treatise on the Materia Medica* (Boston: C. Ewer, 1822), 126–33.
- *Short reads:*
  - Robin A. Smith, "Malaria Parasites Hijack Your Genes to Set up Camp Inside Your Liver," *Duke Today* (blog), June 27, 2019, <https://today.duke.edu/2019/06/malaria-parasites-hijack-your-genes-set-camp-inside-your-liver>.

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Tues, Sept 1: Full class: Chemicals: natural and synthetic, traditional and colonial (guest: chemist [Maria Toro-Moreno](#), graduate student in [Derbyshire Lab](#) @ Duke Chemistry, specialist in antimalarial drugs and life cycles of malaria plasmodia)

Thurs, Sept 3: Sections: Natural and synthetic chemicals; searching for historical sources

#### Week 4: Varieties of chemical science: Mercury & gold

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- Tara E. Nummedal, "The Lion's Blood," in *Anna Zieglerin and the Lion's Blood: Alchemy and End Times in Reformation Germany* (Philadelphia: University of Pennsylvania Press, 2019), 70-100.
- Primary source:
  - Explore: Michael Maier, *Furnace and Fugue: A Digital Edition of Michael Maier's Atalanta fugiens*, ed. Tara E. Nummedal and Donna Bilak (University of Virginia Press, 2020), <https://furnaceandfugue.org/atalanta-fugiens/>.
- Short reads / videos:
  - Karl Lief Bates, "Gold Mining With Mercury Poses Health Threats for Miles Downstream," May 28, 2020, <https://today.duke.edu/2020/05/gold-mining-mercury-poses-health-threats-miles-downstream>.
  - Nicholas Casey and Brent McDonald, "How Tainted Gold May Have Ended Up in Your Phone," *The Weekly* (*The New York Times*), August 30, 2019, <https://www.nytimes.com/2019/08/30/the-weekly/gold-apple-iphone-columbia.html>.

Tues, Sept 8: Full class: Alchemy, mining, and medicine

Thurs, Sept 10: Sections: Gender, sexuality, & chemicals; exploring chemical "microworlds"

#### Week 5: Varieties of chemical industry: Indigo

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- Tiffany Lethabo King, *The Black Shoals: Offshore Formations of Black and Native Studies* (Durham: Duke University Press, 2019), 125-132.
- Prakash Kumar, "Introduction: The Odyssey of Indigo," in *Indigo Plantations and Science in Colonial India* (New York: Cambridge University Press, 2012), 1-24.
- Anthony S. Travis, *The Rainbow Makers: The Origins of the Synthetic Dyestuffs Industry in Western Europe* (Bethlehem, PA: Lehigh University Press, 1993), 220-230.
- Short reads and media:
  - Lukas Rieppel and Eugenia Lean, "Eugenia Lean, 'Vernacular Industrialism in China' (Columbia UP, 2020)," *New Books in Science, Technology, and Society*, July 17, 2020, <https://newbooksnetwork.com/eugenia-lean-vernacular-industrialism-in-chinacolumbia-up-2020/>.
  - Peruse: J. G. Bartholomew, *Atlas of the World's Commerce* (London: George Newnes, 1907), David Rumsey Historical Map Collection, <https://www.davidrumsey.com/luna/servlet/s/d87uhi>.

Tues, Sept 15: Full class: Doing industrial chemistry in fields, forests, factories, workshops

Thurs, Sept 17: Open checkpoint I work session + Q&A (in project groups or sections)

**Syllabus subject to change at instructor's discretion. Latest version posted on Sakai.**

**Week 6: Compound Histories checkpoint I**

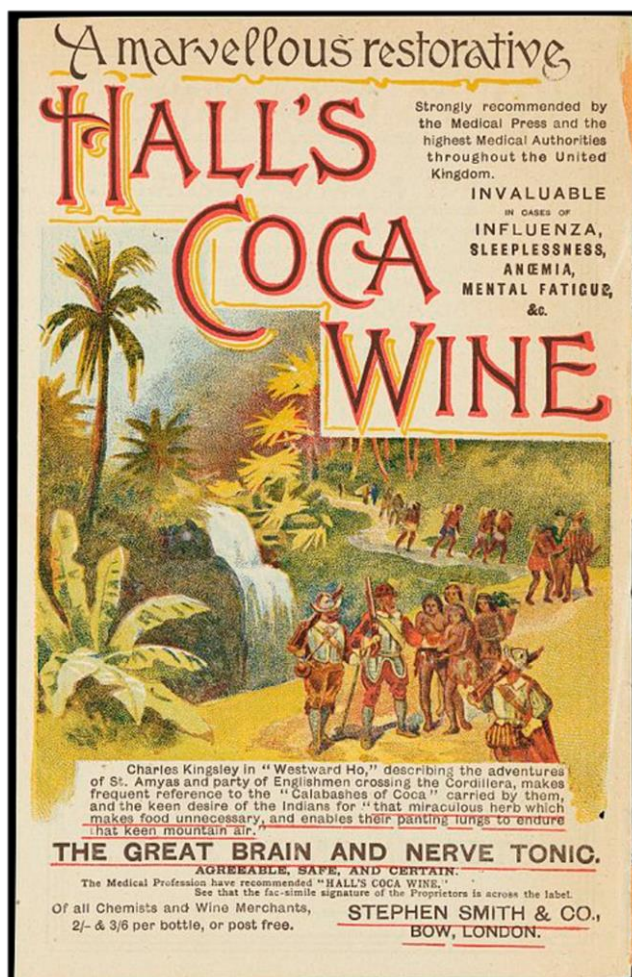
- *Optional fiction: Amitav Ghosh, Sea of Poppies (FSG, 2008).*

*Tues, Sept 22: Sections (note the Tuesday meeting): Project presentations & discussion*

**\*\*\*Compound Histories Project Part I\*\*\*  
(Annotated bibliography + primary source analyses)  
Due Weds, Sept 23, 5pm**

*Thurs, Sept 24: No meeting: reflect & connect*

**\*\*\*Reflecting, Connecting, Noticing I\*\*\*  
(Suggested length: 3 pages double-spaced)  
Due Friday, Sept 25, 5pm**



*Advertisement for Hall's Coca Wine, circa 1890s.*

[Wellcome Images, <https://wellcomeimages.org/indexplus/image/L0063964.html>, accessed 21 June 2018]

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## UNIT 2: CHEMICAL GOVERNANCE

### Week 7: Economy and waste: Fertilizers

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- Mitchell, "Can the Mosquito Speak?," 31-51.
- Hannah Landecker, "A Metabolic History of Manufacturing Waste: Food Commodities and Their Outsides," *Food, Culture & Society* 22, no. 5 (2019): 530-43.
- Gabriela Soto Laveaga, "Largo Dislocare: Connecting Microhistories to Remap and Recenter Histories of Science." *History & Technology* 34, no. 1 (March 2018): 21-30.  
<https://doi.org/10.1080/07341512.2018.1516850>.
- *Short reads:*
  - Kristina García, "Decolonizing the Syllabus," *Penn Today*, 15 Nov 2019, <https://penntoday.upenn.edu/news/global-history-science>.

*Tues, Sept 29: Full class: Chemical governance of economies, environments, and bodies (guest: nitrogen historian [N.J. Dharan](#))*

*Thurs, Oct 1: Sections: Waste & governance*

### Week 8: Eradication and resistance: Pesticides, antibiotics, and vaccines

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- *Pesticides:*
  - Clapperton Chakanetsa Mavhunga, "The Coming of the Organochlorine Pesticide," in *The Mobile Workshop: The Tsetse Fly and African Knowledge Production* (Cambridge, MA: MIT Press, 2018), 211-222.
- *Vaccines:*
  - Julie Livingston, Keith Wailoo, and Barbara M. Cooper, "Vaccination as Governance," in *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions* (Baltimore: Johns Hopkins University Press, 2010), 231-253.
- *Antibiotics:*
  - Scott H. Podolsky et al., "History Teaches Us That Confronting Antibiotic Resistance Requires Stronger Global Collective Action," *The Journal of Law, Medicine & Ethics* 43, no. S3 (2015): 27-32.
  - Bharat Jayram Venkat, "Of Cures and Curses: Toward a Critique of Curative Reason," *Public Culture* 30, no. 2 (May 1, 2018): 277-82.

*Tues, Oct 6: Full class: Modern chemistry's magic bullets*

*Thurs, Oct 8: Sections: Locating, comparing, & connecting compound histories*

### Week 9: Regulation and justice: clean air, clean water, essential medicines

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- Pavithra Vasudevan, "An Intimate Inventory of Race and Waste," *Antipode* (15 Jan 2019), <https://doi.org/10.1111/anti.12501>.
- Kristen Simmons, "Settler Atmospherics," *Cultural Anthropology*, November 20, 2017, <https://culanth.org/fieldsights/1221-settler-atmospherics>.

**Syllabus subject to change at instructor's discretion. Latest version posted on Sakai.**

- *Short reads & media:*
  - Fran Quigley, "[Opinion | Escaping Big Pharma's Pricing With Patent-Free Drugs](#)," *The New York Times*, January 20, 2018, sec. Opinion.
  - Vann R. Newkirk II, "Fighting Environmental Racism in North Carolina," *The New Yorker*, January 16, 2016, <https://www.newyorker.com/news/news-desk/fighting-environmental-racism-in-north-carolina>.
  - Browse *Environmental Justice Atlas*, <https://ejatlas.org/>

Mon, Oct 12: [Indigenous Peoples' Day](#)

Tues, Oct 13: Full class: Talking chemicals & chemistry w/ guest polymer chemist [Dean Valerie Ashby](#)

Thurs, Oct 15: Full class (note Thurs meeting): Regulation, justice, racism, & privilege

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### Week 10: Roundtable: compound histories and chemical governance

Tues, Oct 20: Full class: Author roundtable (featuring [Gabriela Soto Laveaga](#), [Bharat Venkat](#), and [Pavithra Vasudevan](#))

Thurs, Oct 22: Open checkpoint II work session + Q&A (in project groups or sections)

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### Week 11: Compound Histories checkpoint II

- *Optional fiction:* Margaret Atwood, *Oryx and Crake* (Knopf, 2003).

Tues, Oct 27: Sections (note the Tuesday meeting): Project presentations & discussion

#### \*\*\*Compound Histories Project Part II\*\*\*

*(Contextual sources analyses + comparison and/or connection linking them)*  
*(Submission must include a map, image analysis, or quantitative data analysis)*  
**Due Wednesday, Oct 28, 5pm\*\*\***

Thurs, Oct 29: No meeting: reflect & connect

\*\*\*Reflecting, Connecting, Noticing II\*\*\*  
**Suggested length: 3 pages double-spaced**  
**Due Friday, Oct 30, 5pm**

## UNIT 3: SOLUTIONS OR FIXES?

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### Week 12: Looking back, looking forward

- *Optional fiction:* N.K. Jemisin, *The Fifth Season* (Orbit, 2015).

Tues, Nov 3: Election Day: volunteer, vote (if you can & haven't already done so), and/or rest

Thurs, Nov 5: Full class (note Thurs meeting): semester review + Q&A on final stage of projects

**Syllabus subject to change at instructor's discretion. Latest version posted on Sakai.**

**Week 13: Green chemistry, precision medicine, machine learning, civic science**

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- Paul Anastas and Nicolas Eghbali, "Green Chemistry: Principles and Practice," *Chemical Society Reviews* 39, no. 1 (December 14, 2009): 301–12.
- Sara Wylie, Nick Shapiro, and Max Liboiron, "Making and Doing Politics Through Grassroots Scientific Research on the Energy and Petrochemical Industries," *Engaging Science, Technology, and Society* 3 (2017): 393–425, <https://doi.org/10.17351/ests2017.134>.
- *Short reads:*
  - Francis S. Collins and Harold Varmus, "A New Initiative on Precision Medicine," *New England Journal of Medicine* 372, no. 9 (February 26, 2015): 793–95.
  - Asher Mullard, "The Drug-Maker's Guide to the Galaxy," *Nature News* 549, no. 7673 (September 28, 2017): 445–447.

*Tues, Nov 10: Full class: Magic bullets revisited*

*Thurs, Nov 12: Sections: Concluding thoughts and open questions*

**\*\*\*Compound Histories Project Final Submission\*\*\***

**(Research paper, podcast, mixed-media web presentation, video, or other work  
+ Bibliography + secondary source annotations)**

**Due Wednesday, Nov 18, 5pm**

**\*\*\*Reflecting, Connecting, Noticing III\*\*\***

**Suggested length: 3 pages double-spaced**

**Due Friday, Nov 20, 5pm**

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## SUPPLEMENTARY BIBLIOGRAPHY

### Overviews and miscellanies

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- *General chemical and pharmaceutical reference works:*
  - See <https://guides.library.duke.edu/chemistry/gettingstarted>
  - *Ullmann's Encyclopedia of Industrial Chemistry*, 6<sup>th</sup>-7<sup>th</sup> ed. (Weinheim: Wiley-VCH, 2003-2020), <https://onlinelibrary-wiley-com.proxy.lib.duke.edu/doi/book/10.1002/14356007>.
  - *Merck Manual of Diagnosis and Therapy*, <https://www.merckmanuals.com/professional>
- *Blogs and series:*
  - *Global interconnections of materials and society in the Anthropocene: Technosphere Magazine*, <https://technosphere-magazine.hkw.de/>, esp. the issues on "Materials," "Metabolic Systems," "Phosphorus," "Spheres," and "Substances."
  - *Drug discovery: Derek Lowe, "In the Pipeline,"* <https://blogs.sciencemag.org/pipeline/>

**Syllabus subject to change at instructor's discretion. Latest version posted on Sakai.**

- *Chemicals and “chemistries”*
  - Lissa L. Roberts and Simon Werrett, eds., *Compound Histories: Materials, Governance and Production, 1760-1840* (Leiden: Brill, 2018), <https://brill.com/view/title/33694>.
  - Roald Hoffmann, *The Same and Not the Same* (New York: Columbia University Press, 1995), esp. xiii-51.
  - Lissa Roberts, “Exploring Global History through the Lens of History of Chemistry: Materials, Identities and Governance,” *History of Science* 54, no. 4 (2016): 335–61.
  - Projit Bihari Mukharji, “Parachemistries: Colonial Chemopolitics in a Zone of Contest,” *History of Science* 54, no. 4 (2016): 362–82.
  - Evan Hepler-Smith, “Molecular Bureaucracy: Toxicological Information and Environmental Protection,” *Environmental History* 24, no. 3 (2019): 534–60.
  - Carsten Reinhardt, ed., “Focus: What’s in a Name: Chemistry as a Nonclassical Approach to the World,” *Isis* 109, no. 3 (2018): 559–607.
  - Bernadette Bensaude-Vincent and Jonathan Simon, *Chemistry: The Impure Science*, 2nd ed. (London: Imperial College Press, 2012).
  - W. H. Brock, *The Chemical Tree: A History of Chemistry* (New York: Norton, 2000).
  - Fred Aftalion, *A History of the International Chemical Industry: From the Early Days to 2000*, 2nd ed. (Philadelphia, PA: Chemical Heritage Press, 2001).
- *Drugs:*
  - Jeremy A. Greene, *Generic: The Unbranding of Modern Medicine* (Baltimore: Johns Hopkins University Press, 2014), esp. 1-17.
  - Sergio Sismondo and Jeremy A. Greene, eds., *The Pharmaceutical Studies Reader* (Malden, MA: Wiley Blackwell, 2015).
  - Joseph Dumit, *Drugs for Life: How Pharmaceutical Companies Define Our Health* (Durham: Duke University Press, 2012).
- *Pollution and toxicity:*
  - Peter Thorsheim, *Inventing Pollution: Coal, Smoke, and Culture in Britain since 1800* (Columbus: Ohio University Press, 2006).
  - Michelle Murphy, *Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers* (Durham: Duke University Press, 2006).
  - Gregg Mitman, *Breathing Space: How Allergies Shape Our Lives and Landscapes* (New Haven: Yale University Press, 2007).
  - David Arnold, *Toxic Histories: Poison and Pollution in Modern India* (Cambridge: Cambridge University Press, 2017).
  - Scott Frickel and James R. Elliott, *Sites Unseen: Uncovering Hidden Hazards in American Cities* (New York: Russell Sage Foundation, 2018).
  - Soraya Boudia et al., “Residues: Rethinking Chemical Environments,” *Engaging Science, Technology, and Society* 4 (2018): 165–78, <https://doi.org/10.17351/ests2018.245>.
- *Health and disease:*
  - Annemarie Goldstein Jutel, *Putting a Name to It: Diagnosis in Contemporary Society* (Baltimore: Johns Hopkins University Press, 2011), 1-14.

**Syllabus subject to change at instructor’s discretion. Latest version posted on Sakai.**

- Charles E. Rosenberg, "Framing Disease," in *Framing Disease: Studies in Cultural History*, ed. Charles E. Rosenberg and Janet Lynne Golden (New Brunswick: Rutgers University Press, 1992), xiii–xvi.
- Linda Lorraine Nash, *Inescapable Ecologies: A History of Environment, Disease, and Knowledge* (Berkeley: University of California Press, 2006).
- *Following substances:*
  - Arjun Appadurai, ed., *The Social Life of Things: Commodities in Cultural Perspective* (New York: Cambridge University Press, 1986), esp. 3–63.
  - Timothy J. LeCain, *The Matter of History: How Things Create the Past* (New York: Cambridge University Press, 2017).
- *Natural/synthetic boundaries:*
  - Sophia Roosth, *Synthetic: How Life Got Made* (Chicago: University of Chicago Press, 2017).
  - Hallam Stevens, *Biotechnology and Society: An Introduction* (Chicago: University of Chicago Press, 2016).

## Week 2

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- *Chemicals, empire, and colonialism:*
  - Wolfgang Schivelbusch, *Tastes of Paradise : A Social History of Spices, Stimulants, and Intoxicants*, trans. David Jacobson (New York: Vintage, 1993).
- *Race, drugs, nations, opioids:*
  - Anne Pollock, "BiDiL: Medicating the Intersection of Race and Heart Failure," in *The Pharmaceutical Studies Reader*, 87–105.
  - Keith Wailoo, *Pain: A Political History* (Baltimore: Johns Hopkins University Press, 2014).
  - Eric C. Schneider, *Smack: Heroin and the American City* (Philadelphia: University of Pennsylvania Press, 2008).
  - Zheng Yangwen, *The Social Life of Opium in China* (Cambridge University Press, 2005).
  - Julia Lovell, *The Opium War: Drugs, Dreams and the Making of China* (London: Picador, 2011).
- *Tobacco:*
  - Sarah Milov, *The Cigarette: A Political History* (Cambridge: Harvard University Press, 2019).
  - Nan Enstad, *Cigarettes, Inc.: An Intimate History of Corporate Imperialism* (Chicago: University of Chicago Press, 2018).
  - Allan M. Brandt, *The Cigarette Century: The Rise, Fall, and Deadly Persistence of the Product That Defined America* (New York: Basic Books, 2007).

## Week 3

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- *Synthetic organic chemistry:*
  - Hugo Schweitzer, "The Influence of Sir William Henry Perkin's Discovery Upon Our Science," *Science* 24, no. 616 (1906): 481–88.
  - Roger Adams, "Synthetic versus Natural Products," *Industrial & Engineering Chemistry* 18, no. 11 (November 1, 1926): 1182–86.

**Syllabus subject to change at instructor's discretion. Latest version posted on Sakai.**

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**Week 8**

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## Week 13

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*Residents protest a lead smelter near Mombasa, Kenya, in 2013.*

*Photo by Norbert Allen, in Human Rights Watch, "Kenya: Toxic Lead Threatening Lives," 24 June 2014, <https://www.hrw.org/news/2014/06/24/kenya-toxic-lead-threatening-lives>, accessed 21 June 2018.*