

K. Maxson, History of Modern Biology  
Major Field, Spring 2015, Prof. Angela N.H. Creager

**TOTAL: 85 UNITS**

A. Discovering Life: Renaissance, Early Modern, and Enlightenment Views of Nature and Natural Knowledge

1. Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1970, 1994), esp. ix–77, 125–165, 226–243, 263–279.
2. Jacques Roger, “The Living World,” in *The Ferment of Knowledge: Studies in the Historiography of Eighteenth-Century Science*, eds. G. S. Rousseau and Roy Porter (Cambridge: Cambridge University Press, 1980), pp. 255–283.
3. William Ashworth, “Natural History and the Emblematic World View,” in *Reappraisals of the Scientific Revolution*, eds. David Lindberg and Robert Westman (Cambridge: Cambridge University Press, 1990), pp. 307–332.
4. Peter J. Bowler, “Nature and the Enlightenment,” ch. 5 of *The Norton History of the Environmental Sciences* (New York: W.W. Norton & Company, 1992), pp. 139–166.
5. Lorraine Daston, “The Nature of Nature in Early Modern Europe,” *Configurations* 6:2 (1998): 149–172.

B. Enlightenment, Classification, and Histories of Natural History

6. Philip R. Sloan, “The Buffon-Linnaeus Controversy,” *Isis* 67 (1976): 356–375.
7. Emma C. Spary, *Utopia’s Garden: French Natural History from Old Regime to Revolution* (Chicago: University of Chicago Press, 2000), esp. intro, ch. 1 and ch. 3.
8. Staffan Müller-Wille and Sara Scharf, “Indexing Nature: Carl Linnaeus and his Fact-Gathering Strategy,” working paper on The Nature of Evidence: How Well Do ‘Facts’ Travel? Jan. 2009.

C. Biology Takes Form: Comparative Anatomy in Museums and Menageries

9. Toby Appel, *The Cuvier-Geoffroy Debate: French Biology in the Decades Before Darwin* (New York: Oxford University Press, 1987).
10. Lynn K. Nyhart, “A Disciplinary Breakdown of German Morphology, 1870–1900,” *Isis* 78 (1987): 365–389.
11. Lynn K. Nyhart, *Biology Takes Form: Animal Morphology and the German Universities, 1800–1900* (Chicago: University of Chicago Press, 1995).
12. William Coleman, “Morphology between Type Concept and Descent Theory,” *Journal of the History of Medicine* 31 (1996): 146–176.

D. Life and Matter: Spontaneous Generation and Cell Theory

13. John Farley and Gerald Geison, “Science, Politics and Spontaneous Generation in Nineteenth-Century France: The Pasteur-Pouchet Debate,” *Bulletin of the History of Medicine* 48 (1974): 161–198.
14. Philip R. Sloan, “Organic Molecules Revisited,” *Buffon* 88 (Paris : J. Vrin ; Lyon: Institut interdisciplinaire d’études épistémologiques, 1992), pp. 415–438.
15. Nicolaas A. Rupke, “Richard Owen’s Vertebrate Archetype,” *Isis* 84 (1993): 231–251.
16. J. Andrew Mendelsohn, “Lives of the Cell,” *Journal of the History of Biology* 36 (2003): 1–37.
17. Hannah Landecker, *Culturing Life: How Cells Became Technologies* (Cambridge, MA: Harvard University Press, 2007).

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18. James E. Strick, "Darwin and the origin of life: public versus private science," *Endeavour* **2009** 33(3): 147-150.

E. The Politics of Evolution: Darwin, Transmutation, and Natural Selection

19. Charles Darwin, *On the Origin of Species, or the Preservation of Favoured Races in the Struggle for Life* (London: John Murray, Abermarle Street, **1859**), Kindle ed., available from: [http://www.gutenberg.org/ebooks/1228?msg=welcome\\_stranger](http://www.gutenberg.org/ebooks/1228?msg=welcome_stranger).
20. Daniel P. Todes, "Darwin's Malthusian Metaphor and Russian Evolutionary Thought, 1859-1917," *Isis* 78 (**1987**): 537-551.
21. Adrian Desmond, "Lamarckism and Democracy: Corporations, Corruption and Comparative Anatomy in the 1830s," *History, Humanity, and Evolution*, edited by James R. Moore (Cambridge/New York: Cambridge University Press, **1989**), pp. 99-130.
22. Marjorie Grene "Darwin, Cuvier and Geoffroy: Comments and Questions," *History and Philosophy of the Life Sciences* 23 (**2001**): 187-211.
23. Robert J. Richards, *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe* (Chicago: University of Chicago Press, **2002**), especially Introduction and chapters 4, 9, and 14.

F. "Organic Physics" and Laboratory Ideals: Physiology in the 19<sup>th</sup> Century

24. Gerald L. Geison, *Michael Foster and the Cambridge School of Physiology: The Scientific Enterprise in Late Victorian Society* (Princeton, NJ: Princeton University Press, **1978**), chapters 2, 7, and 8.
25. William Coleman, "The Cognitive Basis of the Discipline: Claude Bernard on Physiology," *Isis* 76 (**1985**): 49-70.
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27. Daniel P. Todes, "Pavlov's Physiology Factory," *Isis* 88 (**1997**): 205-246.
28. Timothy Lenoir, "Social Interests and the Organic Physics of 1847," *Instituting Science: The Cultural Production of Scientific Disciplines* (Stanford, CA: Stanford University Press, **1997**), pp. 75-95.
29. Iwan Rhys Morus, "Galvanic Cultures: Electricity and Life in the Early Nineteenth Century," *Endeavor* 22:1 (**1998**): 7-11.
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31. Laura Otis, "The Metaphoric Circuit: Organic and Technological Communication in the Nineteenth Century," *Journal of the History of Ideas* 63 (**2002**): 105-128.
32. Laura Otis, *Muller's Lab: The story of Jakob Henle, Theodor Schwann, Emil du Bois-Reymond, Hermann von Helmholtz, Rudolf Virchow, Robert Remak, Ernst Haeckel, and their brilliant, tormented advisor*, Oxford UP (**2007**).

G. Contending Views of Heredity: Experimental Embryology and Transmission Genetics, or, "The Revolt from Morphology?"

33. Jan Sapp, "The Struggle for Authority in the Field of Heredity, 1900-1932: New Perspectives on the Rise of Genetics," *Journal of the History of Biology* 16 (**1983**): 311-342.

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37. Diane B. Paul and Barbara A. Kimmelman, "Mendel in America: Theory and Practice, 1900–1919," in *The American Development of Biology*, eds. Ronald Rainger, Keith R. Benson, and Jane Maienschein (New Brunswick, NJ: Rutgers University Press, 1991 [1988]), pp. 281–310.
38. Garland Allen, "Eugenics and American Social History, 1880–1950," *Genome* 31 (1989): 885–889.
39. Loren R. Graham, "Stalinist Ideology and the Lysenko Affair," from *Science in Russia and the Soviet Union* (Cambridge University Press, 1993), pp. 121–134.
40. Jean-Paul Gaudillière, "Mendelism and Medicine: Controlling Human Inheritance in Local Contexts, 1920–1960," *Comptes Rendus de la Academie des Sciences III* 323 (2000): 1117–1126.

H. Biology in the Cold War I: Population Genetics, the Evolutionary Synthesis, and Lysenkoism

41. Mark B. Adams, "The Founding of Population Genetics: Contributions of the Chetverikov School, 1924–1934," *Journal of the History of Biology* 1 (1968): 23–39.
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44. Nikolai Krementsov, "The 'Second Front' in Soviet Genetics: The International Dimension of the Lysenko Controversy," *Journal of the History of Biology* 29 (1996): 229–250.
45. Michael Dietrich, "Paradox and Persuasion: Negotiating the Place of Molecular Biology within Evolutionary Biology," *Journal of the History of Biology* 31 (1998): 85–111.

I. Before the Double Helix: American Biology and "Biomedicine," 1900-1945

46. Robert E. Kohler, *From Medical Chemistry to Biochemistry: The Making of a Biomedical Discipline* (Cambridge UP, 1982).
47. Philip Pauly, *Controlling Life: Jacques Loeb and the Engineering Ideal in Biology*, Oxford UP (1987).
48. Lily E. Kay, "Selling Pure Science in Wartime: The Biochemical Genetics of G.W. Beadle," *Journal of the History of Biology* 22(1989): 85-98.
49. Robert E. Kohler, *Partners in Science: Foundations and Natural Scientists, 1900-1945* (Chicago, 1991).
50. Robert E. Kohler, *Lords of the Fly: Drosophila Genetics and the Experimental Life* (Chicago: University of Chicago Press, 1994).
51. Angela N.H. Creager, *The Life of a Virus: Tobacco Mosaic Virus as an Experimental Model, 1930-1965* (Chicago, 2001).

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J. Biology in the Cold War II: The “Golden Age” of Molecular Biology and its Rivalry with Biochemistry

53. Jean-Paul Gaudillière, “Molecular Biology in the French Tradition? Redefining Local Traditions and Disciplinary Patterns,” *Journal of the History of Biology* 26 (**1993**): 473–498.
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55. Lily E. Kay, *Who Wrote the Book of Life?: A History of the Genetic Code* (Stanford UP, **2000**).
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58. Angela N. H. Creager and Gregory J. Morgan, “After the Double Helix: Rosalind Franklin’s Research on Tobacco Mosaic Virus,” *Isis* 99 (**2008**): 239–272.
59. Angela N. H. Creager, “Essay Review: The Paradox of the Phage Group,” *Journal of the History of Biology* 43 (**2010**): 183–193.

K. Selfish Genes and Genetic Selfhood: Sociobiology, Developmental Biology, and Molecular Immunology

60. W. R. Albury, “Politics and Rhetoric in the Sociobiology Debate,” *Social Studies of Science* 10 (**1980**): 519–36.
61. Donna Haraway, “The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune Systems Discourse,” *Simian, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, **1991**), pp. 203–230.
62. Thomas Söderqvist, “Darwinian Overtones: Niels K. Jerne and the Origin of the Selection Theory of Antibody Formation,” *Journal of the History of Biology* 27 (**1994**): 481–529.
63. Alfred I. Tauber, “Postmodernism and Immune Selfhood,” *Science in Context* 8 (**1995**): 579–607.
64. Evelyn Fox Keller, “*Drosophila* Embryos as Transitional Objects: The Work of Donald Poulson and Christiane Nüsslein-Volhard,” *Historical Studies in the Physical and Biological Sciences* 26:2 (**1996**): 313–346.
65. Michel Morange, “The Transformation of Molecular Biology on Contact with Higher Organisms, 1960–1980: from a Molecular Description to a Molecular Explanation,” *History and Philosophy of the Life Sciences* 19 (**1997**): 369–393.
66. Marcel Weber, “Redesigning the Fruit Fly: The Molecularization of *Drosophila*,” in Angela N.H. Creager, Elizabeth Lunbeck, and M. Norton Wise, eds., *Science without Laws: Model Systems, Cases, Exemplary Narratives* (Charlotte, NC: Duke University Press, **2007**), pp. 23–45.
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*Development and Evolution: Historical and Epistemological Perspectives* (Cambridge, U.K.: Cambridge UP, **2008**), pp. 193-215.

L. A Recombinant World & Life on the Screen

68. Robert Cook-Deegan, "Wizards of the Information Age," ch. 18 of *Gene Wars: Science, Politics, and the Human Genome* (New York: W.W. Norton, **1994**), pp. 283–298.
69. Horace Freeland Judson, "Epilogue," *The Eighth Day of Creation*, exp. ed. (Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press, **1996**), pp. 591–617.
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72. Doogab Yi, "Cancer, Viruses, and Mass Migration: Paul Berg's Venture into Eukaryotic Biology and the Advent of Recombinant DNA Research and Technology, 1967–1980," *Journal of the History of Biology* 41 (**2008**): 589–636.
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74. Hallam Stevens, *Life Out of Sequence: A Data-Driven History of Bioinformatics* (Chicago: University of Chicago Press, **2013**).

M. Biology in the Field: Ecology and Ethology

75. Robert E. Kohler, *Landscapes and Labscapes: Exploring the Lab-Field Border in Biology* (Chicago: University of Chicago Press, **2002**).
76. Richard Burkhardt, "The Founders of Ethology and the Problem of Aggression: A Study in Ethology's Ecologies," in *The Animal/Human Boundary: Historical Perspectives*, ed. Angela N. H. Creager and William Chester Jordan (Rochester, NY: University of Rochester Press, **2002**), pp. 265–304.
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79. Angela N. H. Creager, *Life Atomic: A History of Radioisotopes in Science and Medicine* (Chicago: University of Chicago Press, **2013**).

Synthetic & Edited Works

80. Daniel J. Kevles, *In the Name of Eugenics: Genetics and the Uses of Human Heredity* (Cambridge, MA: Harvard University Press, **1985** and reissued).
81. Gerald Geison, ed., *Physiology in the American Context, 1850-1940* (American Physiological Society, **1987**).
82. Adele Clarke and Joan H. Fujimura, *The Right Tools for the Job: At Work in Twentieth-Century Life Sciences*, Princeton UP (**1992**).
83. *Cultures of Natural History*, ed. Nicholas Jardine, James A. Secord, and Emma C. Spary (Cambridge: Cambridge University Press, **1995**).

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84. Andrew Cunningham and Perry Williams (eds.), *The Laboratory Revolution in Medicine* (Cambridge UP, **2002**).
85. Staffan Müller-Wille and Hans-Jörg Rheinberger, *A Cultural History of Heredity* (Chicago: University of Chicago Press, **2012**).

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5. Johann Wolfgang von Goethe, Excerpts from “Erster Entwurf...” (1817), *Sourcebook in Animal Biology*, pp. 63–83.
6. Lorenz Oken, Excerpts from “Lehrbuch der Naturphilosophie...” (1809), *Sourcebook in Animal Biology*, pp. 63–83.
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