

Biology 4270 – History of Biology – Fall 2026

Instructor: Dr Steve Carr

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1030-12N TuTh or by arrangement

Lectures TuTh 0900–1015 C-4011

Labs Fri 1400-1700 CSF-

Website: [<http://www.mun.ca/biology/scarr/Bio4270.html>]

Required Text: R Hopkins (2026) *A History of Biology*. [Available on Amazon]

Recommended Texts:

WF Bynum, EJ Browne, R Porter (1981). *Dictionary of the History of Science*.

M Morange (TL Fagan & JM, translators) (2021). *A History of Biology*. Princeton.

See attached **Resource List** for specialty topics.

Lecture Outline

1. **Greek, Roman, & Islamic Science:** Origins of Western Biology
2. History of **Evolution**
3. History of **Genetics**
4. History of **Microbiology**
5. History of **Development**
6. **Technology & Science:** Does the Tail wag the Dog ?
 - Development of the **microscope**
7. **Philosophy** of Science & Biology
 - Popper *versus* Kuhn: Demarcation *versus* Scientific Revolutions
8. Specialty Topics
 - **Avicenna & Islamic** Medicine and Science
 - **Travel** is Broadening: Linnaeus, Cook, Humboldt in the 18th Century
 - **Eugenics:** CB Davenport & The Mismeasure of Man
 - **Genetics in the Soviet Union** under Vavilov & Lysenko
 - John & the Pump Handle: Birth of Epidemiology
 - "Spanish" Flu (1919) *versus* "Chinese" Covid-19 (2020) Pandemics
 - History of **Medicine: Miasma versus Germ Theories** of Disease

Component	Item	Fraction	Date	
Participation	Tutorials	20%		
	Discussion	20%		
Project	Proposal	5%		
	Draft	10%		
	Presentation	15%		
Exam	Midterm	10%		
	Final	20%		
Sum		100%		

Discussion: Enthusiastic participation in tutorials is expected. Each student will lead Discussion of one or more films, based on notes

Project: A one-paragraph **Proposal** is due <0900 on the date indicated.

Draft PPT presentation (~10 slides) is due <0900 on the date indicated.

Presentations will be made on the dates indicated (TBD), and evaluated for content, quality of graphics, and clarity of presentation.

Exams: Midterm & Final exams will consist of a subset of pre-assigned essay topics made available throughout the semester. Answers should be prepared ahead of the exam time, and will be graded on that assumption. Details to be discussed.



Biol4270 - Resource List

Texts [* are of special importance to SMC. Titles in the **Cambridge** History of Science]

Garland **Allen** (1978). *Life Science in the Twentieth Century*. Cambridge.

George **Basalla** (1988). *The Evolution of Technology*. Cambridge.

*Jacob **Bronowski** (1973). *The Ascent of Man*. Folio Society.

Janet **Browne** (1995). *Charles Darwin: Voyaging*. Knopf.

(2002). *Charles Darwin: The Power of Place*. Knopf.

* (2004). *Origin of Species*: Penguin Books Great Ideas edition. [introduction for non-specialist]

Elof Axel **Carlson** (2018). *How Scientific Progress Occurs*. Cold Spring Harbor.

William **Coleman** (1977) *Biology in the Nineteenth Century*. Cambridge.

*Charles **Darwin** (1859). *Origin of Species*. Harvard. [1959 facsimile of 1st edition].

Daniel C. **Dennett** (1995). *Darwin's Dangerous Idea*. Beacon.

*Loren **Eiseley** (1959). *Darwin's Century*. Doubleday.

(1960). *Firmament of Time*. Doubleday.

[See also new two-volume edition in *Library of America* series]

Andrew **Ede** & Lesley B. **Cormack** (2017). *A History of Science in Society*, 3rd ed. U Toronto.

Vol. 1. *From the Ancient Greeks to the Scientific Revolution*.

Vol. 2. *From the Scientific Revolution to the Present*.

Stephen Jay **Gould** (2002). *The Structure of Evolutionary Theory*. Harvard.

Edward **Grant** (1996) *The Foundations of Modern Science in the Middle Ages*. Cambridge.

*John **Gribbin** (2002). *History of Western Science, 1543 - 2001*. Penguin. [Folio reprint 2012].

Thomas L. **Hankins** (1985). *Science and the Enlightenment*. Cambridge.

*Richard **Hofstadter** (1955). *Social Darwinism in American Thought, 1860 -1915* (rev. ed.). Beacon.

*Russell **Hopkins** (2026). *A History of Biology*. Private printing.

William **Irvine** (1955). *Apes, Angels, and Victorians: Darwin, Huxley, & Evolution*. McGraw-Hill.

*Horace **Judson** (1994). *The Eighth Day of Creation*. Cold Spring Harbor [Commemorative ed.; 1st ed. 1979]

*Benjamin **Lewin** (2023). *Inside Science: Revolution in Biology and Its Impact*. Cold Spring Harbor.

Stanton J. Linden (2003). *The Alchemy Reader: From Hermes Trismegistus to Isaac Newton*. Cambridge.

GER **Lloyd** (1970). *Early Greek Science: Thales to Aristotle*. WW Norton.

(1973). *Greek Science after Aristotle*. WW Norton.

* [Single-volume reprint by Folio Society, 2002]

*Ernst **Mayr** (1994). *One Long Argument* [see especially [Chapter 4: Darwin's Path](#)]. Harvard University.

Alondra **Nelson** (2016). *The Social Life of DNA: Race, Reparations, and Reconciliation after the Genome*. Beacon Press.

Alfred **Sturtevant** (1965). *A History of Genetics*. Harper & Row. [Cold Spring Harbor reprint, 1991]

*G. Rattray **Taylor** (1963). *The Science of Life: An Illustrated History*. Thames.

Kristi **Upson-Saia**, Heidi **Marx**, & Jared **Secord** (2023). *Medicine, Health, & Healing in the Ancient Mediterranean, 500 BCE - 600 CE*. University of California.

Ilza **Veith** (transl.) (1975). *The Yellow Emperor's Classic of Internal Medicine*. University of California.

Web resources

John **van Wyhe** (ed.) (2002), [The writings of Charles Darwin on the web](#)
[A [virtual bookshelf](#) of the complete works of Darwin]

*RM **Eakin**. [Great Scientists Speak Again](#).

[Link to Eakin's lectures as Harvey, Darwin, Mendel, Pasteur, Beaumont, & Spemann]

Charles Darwin (1875) [Autobiography of Charles Darwin](#) [[Brief biography of Darwin](#) by John van Wyhe]

[Thesaurus Linguae Graecae](#): Complete works from Ancient Greece

[Isis: A Journal of the History of Science Society](#) [available on MUN server]

Wikipedia [Timeline of Women in Science](#)

Web books [free, or almost]

Complete Works of **Aristotle** [see esp *Generation of Animals*]

Complete Works of Charles **Darwin** [see esp *Origin of Species* (1st ed), *Descent of Man*, *Life & Letters*]

Complete Works of **Plato** [Classic translation by Benjamin Jowett:

see esp. **Chap 7** of *The Republic* for the **Image of the Cave**]

Thomas Huxley *Life & Letters of Thomas Huxley* [see also *Evolution of Man*]

Charles Lyell (1830) *Principles of Geology*. [Web has 1875 edition; Penguin reprints 1st edition of 1830]

Gregor Mendel (1867) *Experiments in Plant Hybridization*. [see William Bateson translation & commentary, 1913]

William Paley (1802) *Natural Theology*.

Philosophy of Biology & Science

*Thomas **Kuhn** (1963). *Structure of Scientific Revolutions*. U Chicago. [50th anniversary edition, 2013]

Paul **Feyerabend** (1975). *Against Method*. Cambridge.

David **Hull** (1974). *Philosophy of Biology*. Prentice-Hall.

Imre **Lakatos** (1970). *Criticism and the Growth of Knowledge*.

Karl **Popper** (1959). *The Logic of Scientific Discovery*. Cambridge.

(1963). *Conjecture and Refutation*. Cambridge.

Bertrand **Russell** (1961). *A History of Western Philosophy*. 2nd edition. Folio.

Stephen **Toulmin** (1953). *The Philosophy of Science*.

RS **Westfall** (1977). *The Construction of Modern Science*. Cambridge.

*Ludwig **Wittgenstein** (1921). *Tractatus Logico-Philosophicus*.