

CORE 103g The Process of Change in Science: Told Through its Greatest Books

Units: 1

Lecture Day/Time: Fall 2022; Mondays and Wednesdays 3:30 to 4:50

Location: Classroom CPA 157 Some lectures on Mondays will also be held in the Doheny Library Rare Book Room DHL 206 and are designated as “labs” in the syllabus

Instructors: James Moffett

Office Hours: By appointment

Contact: Email: jmoffett@usc.edu

Course Description

This course is about the history of science that focuses on a medium of communicating discoveries, observations and insight that was critical to the development of modern science: books written by scientists themselves. The course is a collaboration between Professor Moffett and librarians at the USC Doheny Library, which has a remarkable collection of materials in its rare books collection. Students will have hands-on access to these materials through classes taught in the Doheny Library. We will begin with key developments that occurred in the Italian Renaissance, the 18th century Enlightenment, culminating in transformative developments in the 19th century. New ways of thinking that originated during the renaissance and enlightenment led to the development of these works, which in turn fostered more innovation. Often, these books pushed the tolerance of societies to their limits, when they questioned fundamental precepts that had been held for centuries. Classic works like Newton’s Principia and Darwin’s “On the Origin of Species” will be studied, but also less noticed but valuable works on the natural history of specific regions. A major focus of the class will be the works themselves as literary accomplishments, and how they had huge impacts beyond the scientific community. In the 19th century the medium for publishing scientific advances shifted from books written by single authors to papers in peer-reviewed journals. We will examine how these journals got started and how peer-review became a standard practice. Yet books have continued to be an important way for scientists to advance their ideas, to this day. We will explore the role of books in modern times, looking at scientists such as Rachel Carson, Richard Dawkins, Yuval Noah Harari and Steven Pinker. Books continue to play a positive role in the engagement of scientists with the broader community. But in this age of misinformation, there is also potential for “scientific” work to be published in books that would never have passed peer-review. We will see that this is not a new phenomenon, but has its roots in the early 20th century. Finally, we will see that recently, many outstanding books have been written by science writers, and we will have a conversation about the role of journalists in the relationship between the science community and the larger world.

Learning Objectives

Students who successfully complete the course will be able to:

- Understand the contribution of books written by single authors has contributed to scientific discourse
- Understand how peer reviewed literature evolved from books written by single authors
- Learn the fundamental skills needed to interpret and critically evaluate literature, including a thorough understanding of how peer review works, and how to evaluate materials that have not undergone peer review.
- Learn to use advanced resources in the USC library, particularly archived material of high value that is poorly documented in common search engines
- Learn how rare books and archived are preserved in modern libraries, and how scholars can obtain and handle these materials

Textbook

Clegg, B. (2019). *Scientifica Historica: How the world's great science books chart the history of knowledge*. Ivy Press. ISBN 9781782408796

Additional Reading

Books do Furnish a Life by Richard Dawkins

Silent Spring by Rachel Carson

An Inconvenient Truth by Al Gore

The Selfish Gene by Richard Dawkins

Sapiens by Yuval Harari

Additional reading will include excerpts from classic works housed in the Doheny Library Rare Books Collections as well as late 20th Century and 21st Century science books.

Web Site

Course materials, including additional readings, links to podcasts and videos, and announcements and assignments will be posted to Blackboard. Students are responsible for checking the website.

Assessment

Assignments	Points	Percentage
Midterm Exam	100	20%
Term Paper	150	30%
Final Exam	200	40%
Class participation	50	10%
Total	500	100%

In-Class Participation

Reading of the assigned materials prior to each class is expected. Students are expected to attend the entirety of class, listen attentively to the instructor and to each other, and engage in respectful debate and dialogue.

Course Syllabus

The syllabus is attached at the end of this document. It may change slightly during the semester. Assignment due dates are firm.

*Case readings are subject to change

Course Policies

1) Exam dates are firm. There are no makeup exams in the course. Performance on the final may be prorated to substitute for a missing midterm exam, if an excuse considered valid by faculty is presented in a timely fashion. An acceptable written excuse or documentation must be provided to the faculty. The final exam will be administered only on the date and time set by the University.

2) Midterm exams will be returned to students by the instructor during discussion section. The final examination will not be returned but will be retained for one semester by the faculty.

3) Regrades: If you think an answer that you have provided was graded incorrectly or if there is an arithmetic error, you may seek a regrade. You must provide a written explanation of why you think your answer was graded incorrectly. Regrade requests are to be submitted to your TA. If a regrade is agreed upon, then the ENTIRE EXAMINATION may be subject to a regrade. Your grade may therefore go up, go down, or remain the same. Regrade requests must be received within one week of when the exam key is posted for midterms, or by the second week of classes the following semester for the final exam.

4) No special assignments for extra credit are permitted.

5) Academic integrity policies of the University will be strictly followed. Infractions can result in severe penalties. There may be assigned seating for exams. No student may be admitted to an exam after the first student has left the exam.

6) Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to one of the Professors as early in the semester as possible. DSP is in STU 301 and is open 8:30 AM – 5:00 PM, Monday thru Friday, Phone number: 213-740-0776.

7) It may be necessary to adjust the syllabus during the semester. Check the course web site or class announcements on Blackboard for updates. Exam dates will not be changed.

8) Any questions or concerns regarding these policies should be addressed to the faculty.



Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
eeotix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report



Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776

osas.usc.edu

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-3340 or otfp@med.usc.edu

chan.usc.edu/otfp

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

DATE	LECTURE	LECTURER	READING	LAB*
8/22	How do scientists communicate?		Watson and Crick (1953)	No labs first week.
8/24	The essential role of books: ancient to modern		Clegg Introduction	
8/29	An introduction to USC's rare book collection			Doheny 206
8/31	Books in the Ancient World		Clegg Chapter 1	
9/5	LABOR DAY HOLIDAY		Clegg Chapter 1	
9/7	Classical Science works			
9/12	Impact of the Renaissance on science		Clegg Chapter 2	Doheny 206
9/14	Isaac Newton			
9/19	Biological & Geological Revolutions		Clegg Chapter 3	Doheny 206
9/21	The development of science journals and peer review 19 th Century		Darwin and Wallace (1858)	
9/26	The Origin of Species		Darwin; Clegg Chapter 3	Doheny 206
9/28	The development of science journals and peer review 20 th Century		Various key papers	
10/3	Biology, ecology and art		Clegg Chapter 3	Doheny 206
10/5	Science Fiction in the 19 th and early 20 th Centuries		Excerpts from Poe, Wells	
10/10	20 th Century: Turning the world on its head		Clegg Chapter 4	Doheny 206
10/12	Books and the Environmental Movement		Silent Spring; Collapse	
10/17	Library lab: accessing the rare book collection		Clegg – all chapters; readings selected by each student	Doheny 206
10/19	Mid Term Exam			
10/24	Library lab: accessing the rare book collection		Reading selected by each student	Doheny 206
10/26	Peer Reviewed Literature in the modern world			
10/31	Independent Research in the Rare Books Room		The Selfish Gene	Doheny 206
11/2	Evolutionary Biology and Books		The evolution of beauty	
11/7	The new physics of the 20 th century		Einstein; Stephen Hawking; Neil Degrasse Tyson	Doheny 206
11/9	Term Paper Presentations			
11/14	Term Paper Presentations			
11/16	Environmental movement & Climate		Rachel Carson; Al Gore	
11/21	Science Communication in the information age		Selections by David Quammen and	
11/28	Thanksgiving			
11/28	Humans as a species		Harari Sapiens	
11/30	Why Books still matter		Dawkins	
	FINAL EXAM			