This document lists the required and optional textbooks for Caltech courses offered during the FA 2019-20 term. Not all courses are listed. Only those courses for which the Registrar has solid information are listed.

This document is updated as more information comes in from instructors.

Please consult the Library Catalog (TIND) to view class course reserves. Course reserves are available in the Sherman Fairchild Library only. Reserve material is available for 3-hour checkout.

Changes in the last 7 days

Ae/APh/CE/ME 101A
Ae/ME 118
Ay 101
Ch 112
Ch 117
Ch 122
Ge 114B
Ge/Ch 128
Ma/CS 006A
AEROSPACE
APPLIED & COMPUTATIONAL MATH

ACM/IDS 101A. Methods of Applied Mathematics.
Instructor: Oscar Bruno

Required textbooks:

Suggested textbooks:

ASTROPHYSICS

Ay 020. Basic Astronomy and the Galaxy.
Instructor: Vikram Ravi

Required textbooks:

Ay 121. Radiative Processes.
Instructor: E Phinney

Required textbooks:

Suggested textbooks:

Ay 123. Structure and Evolution of Stars.
Instructors: Lynne Hillenbrand, Evan Kirby

Required textbooks:
Suggested textbooks:
Gray, David; *The Observation and Analysis of Stellar Photospheres*, ISBN: 0-521-06681-6

### BIOENGINEERING

**Bi 122. Genetics.**

*Instructor*: Paul Sternberg

**Required textbooks:**

**Bi/Ch 110. Introduction to Biochemistry.**

*Instructor*: William Clemons

**Required textbooks:**

### BUSINESS, ECONOMICS, AND MANAGEMENT

**BEM/Ec/ESE 119. Environmental Economics.**

*Instructor*: John Ledyard

**Required textbooks:**

**BEM105. Options.**

*Instructor*: Jaksa Cvitanic

**Required textbooks:**
CHEMICAL ENGINEERING

ChE103A. Transport Phenomena.
Instructor: Julia Kornfield

Required textbooks:

CHEMISTRY

Ch 001A. General Chemistry.
Instructor: Nathan Lewis

Required textbooks:


Notes for students:
Feel free to use the 8th edition. However, please note that the page references on the schedule in the course syllabus will be towards the 6th edition.

Ch 041A. Organic Chemistry.
Instructor: Robert Grubbs

Required textbooks:

Ch 117. Introduction to Electrochemistry.
Instructor: Kimberly See

Required textbooks:
EC 011. Introduction to Economics.
Instructor: Charles Plott

Required textbooks:

EC 122. Econometrics.
Instructor: Robert Sherman

Required textbooks:

ELECTRICAL ENGINEERING

EE 111. Signal-Processing Systems and Transforms.
Instructor: Palghat Vaidyanathan

Required textbooks:

EE/Ma/CS 126A. Information Theory.
Instructor: Michelle Effros

Required textbooks:
Cover & Thomas; Elements of Information Theory, . ISBN: 9780-471241959

Suggested textbooks:
Gallager; Information Theory and Reliable Communication, . ISBN: 9780-471290483
ENGINEERING

E 110. Principles of University Teaching and Learning in STEM.

Instructor: Cassandra Horii

**Required textbooks:**


**Suggested textbooks:**


Notes for students:

The required and suggested books are all available as ebooks, either through the Caltech library or on an external site.

ENGLISH

En 180. Special Topics in English: American Literature of the Environment.

Instructor: Stefanie Sobelle

**Required textbooks:**


**Suggested textbooks:**

Amitav Ghosh ; *The Great Derangement: Climate Change and the Unthinkable*, University of Chicago Press, 2017. ISBN: 9780226526812
En 183. Victorian Crime Fiction.

Instructor: Dehn Gilmore

**Required textbooks:**

- Wilkie Collins; *The Moonstone*, ISBN: 9780199536726
- Mary Elizabeth Braddon; *Lady Audley's Secret*, ISBN: 9780199537242
- Wilkie Collins; *Law and the Lady*, ISBN: 9780140436075
- Charles Dickens; *Oliver Twist*, ISBN: 978-0141439747

En/VC 108. Volcanoes.

Instructor: Anne Sullivan

**Required textbooks:**


Notes for students:

Please purchase or borrow the Penguin Classics edition of M. P. Shiel's *The Purple Cloud* published in 2012 (edited by John Sutherland). And, please purchase or borrow the Broadview Press 3rd edition of *Frankenstein: The Original 1818 Text* (edited by D. L. MacDonald and Kathleen Scherf). Please note: the 1818 version of *Frankenstein* by Broadview is substantially different from the 1831 version of the novel, which many other publishers use instead.

ENVIRONMENTAL SCIENCE & ENGINEERING
FRESHMAN SEMINARSE

FS/ESE/Ge 018. Freshman Seminar: The Unseen Microbial World in Plain Sight.

Instructor: Jared Leadbetter

**Required textbooks:**


Instructor: Hugh Politzer

**Required textbooks:**

Notes for students:
An eBook version of “This Is Your Brain...” is available at Caltech once you register in the Fall. However, inexpensive paperback versions are widely available, new or used. There are updated editions, but the first one would be fine. You choose.

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**GEOLOGY**

**Ge 114A. Mineralogy.**

Instructor: George Rossman

**Suggested textbooks:**

Notes for students:
earlier editions also work well.

**Ge 212. Thermodynamics of Geological Systems.**

Instructor: Paul Asimow

**Required textbooks:**

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**HISTORY**

**H 135. War, Conquest, and Empires.**

Instructor: Philip Hoffman

**Required textbooks:**
H 150. America in the 1960s.

Instructor: Andrea Thabet Waldman

Required textbooks:
Schulman, Bruce J.; Lyndon Johnson and American Liberalism: A Brief Biography with Documents (2nd), Bedford/St. Martin's, 2006. ISBN: 978-0312416331

HISTORY AND PHILOSOPHY OF SCIENCE

HPS/Pl 123. Introduction to the Philosophy of Physics.

Instructor: Charles Sebens

Required textbooks:

HUMANITIES

Hum/En 020. Greek Epic and Drama.

Instructor: George Pigman

Required textbooks:
Homer; The Iliad, , ISBN: 9780140275360
Mary Lefkowitiz and James Romm,; The Greek Plays, , ISBN: 978-0812983098
Homer; The Odyssey, trans. Emily Wilson, , ISBN: 978-0393356250

Hum/H 001 (Section 1). American History.

Instructor: J. Kousser

Required textbooks:
Hum/H 001 (Section 2). American History.

Instructor: J. Kousser

Required textbooks:

Hum/H 003. The United States in the Twentieth Century.

Instructor: Andrea Thabet Waldman

Required textbooks:

Hum/Pl 041. Knowledge and Reality.

Instructor: Mario Georg Hubert

Required textbooks:
- Sextus Empiricus; *Selections from the Major Writings on Scepticism, Man, and God*, Hackett, 1985. ISBN: 087220006X

Hum/VC 049. Consuming Victorian Media.

Instructor: Anne Sullivan
Required textbooks:

Notes for students:

**Hum114A. Spanish and Latin American Literature.**

*Instructor:* Gloria Arjona

**Required textbooks:**
Chang-Rodríguez, Raquel; *Voces de Hispanoamérica (5th)*, Cengage, 2017. ISBN: 9781305584488

**LANGUAGES**

**L 102A. Elementary French.**

*Instructor:* Christiane Orcel

**Required textbooks:**


Notes for students:
The e-books are also fine.

**L 106A. Elementary Japanese.**

*Instructor:* Megumi Fujio

**Required textbooks:**
Ritsuko Hirai; *First Year Japanese (6)*, Pearson, . ISBN: 9781323419014

Ritsuko Hirai; *First Year Japanese Workbook (7)*, Pearson, . ISBN: 9781323587829

**L 110A (Section 1). Elementary Spanish.**
Instructor: Daniel Garcia

**Required textbooks:**


**Notes for students:**

We will use one textbook [JUNTOS] during the whole academic year. You have several purchase and rental options. Please make sure to select the proper one according to the number of terms you're planning to take elementary Spanish. The option listed at the Caltech Bookstore is for those students who plan to take three terms and want a printed copy of the textbook. For all the options, visit:


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**L 110A (Section 2). Elementary Spanish.**

Instructor: Gloria Arjona

**Required textbooks:**

Rubio, Fernando; *Juntos (1st)*, Cengage, 2019. ISBN: 9781337809924

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**L 112A. Intermediate Spanish.**

Instructor: Daniel Garcia

**Required textbooks:**


**Notes for students:**

We will use one textbook [Rutas] during the whole academic year. You have several purchase and rental options. Please make sure to select the proper one according to the number of terms you're planning to take. For all the options, visit: https://www.cengage.com/c/rutas-intermediate-spanish-1e-velardi/

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**L 114A. Spanish and Latin American Literature.**

Instructor: Gloria Arjona

**Required textbooks:**

Chang-Rodríguez, Raquel; *Voces de Hispanoamérica (5th)*, Cengage, 2017. ISBN: 1305584481

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**L 170A. Introduction to Chinese.**
Instructor: Xiangyun Wang

Required textbooks:

Notes for students:
The textbook and workbook listed here are written in simplified Chinese characters. If you prefer to learn the traditional Chinese characters, you may buy books with the same booktitle but different ISBN. It is okay to use the digital version.

L 172A. Intermediate Chinese.
Instructor: Xiangyun Wang

Required textbooks:

Notes for students:
You may use the digital version of the textbook and workbook listed here.

L/VC 109. Introduction to French Cinema from Its Beginning to the Present.
Instructor: Christiane Orcel

Required textbooks:

MATERIALS SCIENCE

MS 132. Diffraction and Structure.
Instructor: Brent Fultz

Required textbooks:
ISBN: 978-3-642-29760-1

Notes for students:
Ma 001A. Calculus of One and Several Variables and Linear Algebra.
Instructor: Dinakar Ramakrishnan

Required textbooks:
Apostol, T; Calculus Volume, . ISBN: 978-0471000051

Ma 001A (Section 1). Calculus of One and Several Variables and Linear Algebra.
Instructor: Dmitri Gekhtman

Required textbooks:
Apostol, Tom M; Calculus, . ISBN: 0-471-00005-1

Ma 002 (Analytical). Differential Equations.
Instructor: Rupert Frank

Required textbooks:
Robinson, James; An Introduction to Ordinary Differential Equations, . ISBN: 0521533910

Ma 002 (Practical). Differential Equations.
Instructor: Lu Wang

Required textbooks:

Ma 005A. Introduction to Abstract Algebra.
Instructor: Matthias Flach

Required textbooks:
Ma 108A. Classical Analysis.

Instructor: Kirill Lazebnik

**Required textbooks:**
Rudin, Walter; *Principles of Mathematical Analysis* (3), . ISBN: 978-0070542358

Ma 110A. Analysis.

Instructor: Ioannis Angelopoulos

**Required textbooks:**

Ma 120A. Abstract Algebra.

Instructor: Dinakar Ramakrishnan

**Required textbooks:**
Lang, Serge; *Algebra*, . ISBN: 978-0387953854

Ma 160A. Number Theory.

Instructor: Ashay Burungale

**Required textbooks:**

Ma/CS 006A. Introduction to Discrete Mathematics.

Instructor: David Conlon

**Required textbooks:**
Ph 001A. Classical Mechanics and Electromagnetism.

Instructor: Clifford Cheung

*Required textbooks:*

Frautschi, Steven C.; *The mechanical universe: mechanics and heat*, . ISBN: 9780521715904

Ph 002A. Waves, Quantum Mechanics, and Statistical Physics.

Instructor: Frank Porter

*Required textbooks:*


Ph 003. Introductory Physics Laboratory.

Instructors: Eric Black, Kenneth Libbrecht

*Required textbooks:*


Ph 012A. Waves, Quantum Physics, and Statistical Mechanics.

Instructor: Xie Chen

*Suggested textbooks:*

Georgi, Howard; *The physics of waves*, . ISBN: 0136656218

Crawford, Frank S; *Waves*, . ISBN: 978-0070048607

French, A. P.; *Vibrations and waves*, . ISBN: 0393099245
Ph 106A. Topics in Classical Physics.

Instructor: Alan Weinstein

Required textbooks:

Ph 127A. Statistical Physics.

Instructor: Olexei Motrunich

Required textbooks:

Ph 135. Introduction to Condensed Matter.

Instructor: Gil Refael

Required textbooks:

Suggested textbooks:

Ph 205A. Relativistic Quantum Field Theory.

Instructor: Sergei Gukov

Required textbooks:
Srednicki, Mark Allen; *Quantum field theory*, ISBN: 9780521864497

Ph 229A. Advanced Mathematical Methods of Physics.

Instructor: Anton Kapustin

Required textbooks:
Nash, Charles, Sen, Siddhartha; *Topology and geometry for physicists*, ISBN: 978-0486478524
**Ph 230A. Elementary Particle Theory.**

**Instructor:** Kathryn Zurek

**Required textbooks:**

**Ph 236A. Relativity.**

**Instructor:** Yanbei Chen

**Required textbooks:**
Carroll, Sean M.; *Spacetime and geometry: an introduction to general relativity*, ISBN: 0805387323
Wald; *General Relativity*, ISBN: 978-0226870335

**VISUAL CULTURE**

**VC 170. Special Topics in Visual Culture: Fabricating LA.**

**Instructor:** Stefanie Sobelle

**Required textbooks:**
Joan Didion; *Play it As it Lays (2nd edition)*, FSG Classics, 2005. ISBN: 0374529949
Nathanael West; *Miss Lonelyhearts & The Day of the Locust (Paperback)*, New Directions, 2009. ISBN: 0811218228

**Suggested textbooks:**
Mike Davis; *City of Quartz*, Verso, 2006. ISBN: 1844675688
Wr 001 (Section 1). Introduction to Academic Writing for Multilingual Writers.

Instructor: Susanne Hall

Required textbooks:

- de Waal, Frans (Author), Stephen Macedo (Editor), Josiah Ober (Editor); *Primates and Philosophers*, Princeton, 2016. ISBN: 978-0691169163