# **Book Adoptions for FA 2017-18**

Prepared Saturday, September 02, 2017

This document lists the required and optional textbooks for Caltech courses offered during the FA 2017-18 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 (<u>TIND</u>) 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

BE/Bi 103

Bi 122

Bi/BE 024

Ch 001A

Ch 041A

Ch 112

Ch 117

Ch 125A

### **APPLIED COMPUTATIONAL MATH**

### ACM101A. Methods of Applied Mathematics I.

Instructor: Oscar Bruno

#### Suggested textbooks:

Ablowitz, Mark J. and Fokas, Athanassios S.; Complex Variables: Introduction and Applications (Second Edition), , . ISBN: 978-0521534291

Bender, Carl M. and Orszag, Steven A.; *Advanced Mathematical Methods for Scientists and Engineers:* Asymptotic Methods and Perturbation Theory, Springer Verlag, . ISBN: 978-0387989310

Carrier, George F., Krook, Max, and Pearson, Carl E.; Functions of a Complex Variable: Theory and Technique (Classics in Applied Mathematics), SIAM, . ISBN: 978-0898715958

### **ASTROPHYSICS**

### Ay 020. Basic Astronomy and the Galaxy.

Instructors: Lynne Hillenbrand, Evan Kirby

#### Required textbooks:

Bradley W. Carroll; Dale A. Ostlie; *An Introduction to Stellar Modern Astrophysics (Second Edition)*, Pearson Education Inc, 2006. ISBN: 0805303480

### **BIOENGINEERING**

# BE/Bi 103. Data Analysis in the Biological Sciences.

Instructor: Justin Bois

### Required textbooks:

Sivia, D. S.; Data Analysis: A Bayesian Tutorial (2nd), Oxford University Press, 2006. ISBN: 9780198568315

# **BIOLOGY**

#### Bi 122. Genetics.

**Instructor**: Bruce Hay

#### Required textbooks:

Griffiths, Anthony J. F., Wessler, Susan R., Carroll, Sean B., Doebley, John F.; *Introduction to Genetic Analysis* (11th), W.H. Freeman Company, 2015. ISBN: 9781464109485

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

Instructors: Judith Campbell, Carl Parker

#### Required textbooks:

Berg, Tymoczko, Gatto Stryer; *Biochemistry (8th)*, W.H. Freeman Company, New York, 2015. ISBN: 978-1-4641-2610-9

#### Suggested textbooks:

Fertuck, Rhodes, Josephy and Koeppe II; *Student Companion to Accompany Biochemistry, 8th Edition*, W.H. Freeman Company (A Macmillan Education Company), New York, 2015. ISBN: 978-1-4641-8803-9

# **BUSINESS, ECONOMICS, AND MANAGEMENT**

### BEM105. Options.

Instructor: Jaksa Cvitanic

#### Required textbooks:

Cvitanic, Jaksa, Zapatero, Fernando; Introduction to the Economics and Mathematics of Financial Markets (1), MIT Press, 2004. ISBN: 0262033208

### Suggested textbooks:

Shreve, Steven; Stochastic Calculus for Finance II: Continuous-Time Models (1), Springer Finance, 2004. ISBN: 0387401016

# **CHEMICAL ENGINEERING**

### ChE/Ch 165. Chemical Thermodynamics.

Instructor: Zhen-Gang Wang

#### Required textbooks:

sandler, stanley; chemical, biochemical engineering thermodynamics (latest), wiley, 2006. ISBN: 978-0471661740

# ChE015. Introduction to Chemical Engineering Computation.

Instructor: Richard Flagan

### Suggested textbooks:

### ChE103A. Transport Phenomena.

Instructor: Julia Kornfield

### Required textbooks:

Bird, R. Byron (Robert Byron), 1924-,Lightfoot, Edwin N., 1925-,Stewart, Warren E., 1924-; *Transport phenomena (Rev. 2nd Ed.)*, , 2007. ISBN: 9780470115398

### **CHEMISTRY**

### Ch 001A. General Chemistry.

**Instructor**: Nathan Lewis

#### Required textbooks:

Oxtoby, D. W., Gillis, H. P., Campion, A.; *Principles of Modern Chemistry (8th edition) (8th)*, Thomson Brooks/Cole Publishing, 2016. ISBN: 9781305079113

Gray, H.B.; Chemical Bonds: An introduction to atomic and molecular structure., University Science Books, 1994. ISBN: 0935702350

# Ch 041A. Organic Chemistry.

**Instructor**: Dennis Dougherty

### Required textbooks:

Loudon, Marc, Parise, Jim; Organic Chemistry (6th), Roberts and Company Publishers, 2016. ISBN: 9781936221349

# Ch 125A. The Elements of Quantum Chemistry.

Instructor: Mitchio Okumura

#### Suggested textbooks:

Shankar, R; *Principles of Quantum Mechanics, 2nd Edition 2nd Edition*, , . ISBN: 978-0306447907 Schrier, Joshua; *Introduction to Computational Physical Chemistry*, , . ISBN: 978-1-938787-90-4 Levine, Ira N.; *Quantum Chemistry*, , . ISBN: 978-0321803450

### **ECONOMICS**

# Ec 121A. Theory of Value.

Instructor: Kim Border

#### Suggested textbooks:

Varian, Hal; Microeconomic Analysis (3rd), Norton, 1992. ISBN: 978-0393957358

#### Ec 122. Econometrics.

Instructor: Robert Sherman

### Required textbooks:

hill, r. carter, griffiths, william e., lim, guay c.; principles of econometrics (4th), wiley, 2011. ISBN: 978-0-470-62673-3

### **ELECTRICAL ENGINEERING**

### **EE 111. Signal-Processing Systems and Transforms.**

Instructor: Palghat Vaidyanathan

### Required textbooks:

Oppenheim, Alan V, Willsky, Alan S.; Signals and Systems (2nd), Prentice Hall, 1996. ISBN: 978-0138147570

### EE/Ma/CS 126A. Information Theory.

Instructor: Michelle Effros

#### Required textbooks:

Cover, T.M., Thomas, J.A.; Elements of Information Theory (2nd), Wiley, 2006. ISBN: 978-0-471-24195-9

## **ENGINEERING**

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

Instructor: Cassandra Horii

Ambrose, Susan, Bridges, Michael, DiPietro, Michele, Lovett, Marsha, Norman, Marie,; How Learning Works: 7 Research-Based Principles for Smart Teaching (Any), Jossey-Bass, 2010. ISBN: 978-0470484104

Kober, Nancy; Reaching Students: What Research Says About Effective Instruction in Undergraduate Science and Engineering, National Academies Press, 2015. ISBN: 978-0309300438

Lang, James M.; Small Teaching: Everyday Lessons from the Science of Learning (Any), John Wiley Sons, 2016. ISBN: 9781118944493

### **ENGLISH**

# En 102. Origins of Science Fiction.

Instructor: Leah Klement

#### Required textbooks:

Cavendish, Margaret; The Blazing World and Other Writings, Penguin Classics, 2004. ISBN: 9780140433722

More, Bacon, Neville (ed. Susan Bruce); *Three Early Modern Utopias*, Oxford World's Classics, 2008. ISBN: 9780199537990

John Mandeville (ed. Anthony Bale); *The Book of Marvels and Travels*, Oxford World's Classics, 2012. ISBN: 9780199600601

Le Guin, Ursula K.; The Left Hand of Darkness, Ace, 2000. ISBN: 9780441007318

# En 139. Reading Resistance in Cold War American Literature.

#### Instructor:

#### Required textbooks:

Demby, William; Beetlecreek (Banner Books Series), University Press of Mississippi, 1998. ISBN: 1578061067

Hansberry, Lorraine; A Raisin in the Sun, Vintage Books for Random House, 2004. ISBN: 0679755330

McCullers, Carson; The Member of the Wedding, Mariner Books, 2004. ISBN: 0618492399

Okada, John; No-No Boy, University of Washington Press, 2014. ISBN: 0295994045

# FRESHMAN SEMINARS

FS/Bi 013. Freshman Seminar: In Search of Memory.

Instructor: Jerome Pine

#### Required textbooks:

Kandel, Eric; In search of memory, Norton, 2006. ISBN: 978-0-393-32937-7

### FS/Ge 016. Freshman Seminar: Earthquakes.

Instructor: Joann Stock

#### Required textbooks:

Musson, Roger; *The million death quake : the science of predicting Earth's deadliest natural disaster (1)*, Palgrave McMillan, 2012. ISBN: 9780230119413

Oppenheimer, Clive; *Eruptions that Shook the World*, Cambridge University Press, 2011. ISBN: 9780521641128

### FS/Ph 009. Freshman Seminar: The Science of Music.

Instructor: Hugh Politzer

#### Required textbooks:

Levitin, Daniel; This Is Your Brain on Music ((paper)), Plume/Penguin, 2007. ISBN: 978-0-452-28852-2

# **GEOLOGY**

### Ge 114A. Mineralogy.

Instructor: George Rossman

#### Suggested textbooks:

Cornelis Klein Barbara Dutrow; *The Manual of Mineral Science* (23), John Wlley Sons, 2008. ISBN: 978-0471-72157-4

# Ge 114B. Mineralogy Laboratory.

Instructor: George Rossman

#### Suggested textbooks:

William D. Nesse; Introduction to Optical Mineralogy (4th), Oxford, 2013. ISBN: 0199846278

#### Ge 161. Plate Tectonics.

Instructor: Joann Stock

#### Suggested textbooks:

Schettino, Antonio; *Quantitative Plate Tectonics (1st)*, Springer, 2015. ISBN: 978-3-319-09135-8

Allan Cox and B. R. Hart; *Plate Tectonics: How it works*, Wiley-Blackwell, 1986. ISBN: 978-0-86542-313-8

# **HISTORY**

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

Instructor: Philip Hoffman

#### Required textbooks:

Andrade, Tonio; Lost Colony, Princeton University Press, 2013. ISBN: 0691159572

Keegan, John; The Face of Battle, Penguin, 1983. ISBN: 978-0140048971

Hoffman, Philip; Why Did Europe Conquer the World?, Princeton, 2015. ISBN: 978-0691139708

Parker, Geoffrey; The Military Revolution (2nd), Cambridge, 1996. ISBN: 978-0521479585

Chase, Kenneth; Firearms, Cambridge, 2003. ISBN: 978-0521722407

Hassig, Ross; *Mexico and the Spanish Conquest*, Oklahoma, 2006. ISBN: 978-0806137933 Diaz del Castillo, Bernal; *The Conquest of New Spain*, Penguin, 1963. ISBN: 978-0140441239

# H/HPS 185. Angels and Monsters: Cosmology, Anthropology, and the Ends of the World.

Instructor: Nicolas Wey-Gomez

#### Required textbooks:

Hesiod; Works and Days (ed. David Tandy and Walter C. Neale), University of California Press, 1997. ISBN: 978-0520203846

Plato; *Plato's Cosmology: The Timaeus of Plato (ed. Francis Cornford)*, Martino Fine Books, 2014. ISBN: 978-1614276197

Marco Polo; The Travels of Marco Polo (ed. Peter Harris), Everyman's Library, 2008. ISBN: 978-0307269133

### **HUMANITIES**

### Hum/En 020. Greek Epic and Drama.

Instructor: George Pigman

### Required textbooks:

Aeschylus; Oresteia, trans. C Collard, , . ISBN: 9780199537815 Aristophanes; Frogs and Other Plays, , . ISBN: 978-0192824097 Euripides; Medea and Other Plays, , . ISBN: 9780199537969 Euripides; Orestes and Other Plays, , . ISBN: 9780199552436

Homer; The Iliad, , . ISBN: 9780140275360

Sophocles; Antigone, Oedipus the King, and Electra, , . ISBN: 9780199537174

### Hum/En 038. Telling Time in American Modernism.

#### Instructor:

#### Required textbooks:

Faulkner, William; Light in August (1st Vintage International), Vintage International for Random House, 2011.

ISBN: 0679732268

Larsen, Nella; Passing, Martino Publishing, 2016. ISBN: 1614270007

Toomer, Jean; Cane, Liveright, 2011. ISBN: 0871402106

### Hum/H 009B. European Civilization: Early Modern Europe.

Instructor: Nicolas Wey-Gomez

### Required textbooks:

Nuñez Cabeza de Vaca, Alvar; Castaways, University of California Press, 1993. ISBN: 978-0520070639

Yupanqui, Titu Cusi; History of how the Spaniards arrived in Peru (Dual-Language Edition), Hackett Publishing Company, 2006. ISBN: 978-0872208285

Erauso, Catalina de; Lieutenant Nun: Memoir of a Basque Transvestite in the New World, Beacon Press, 1997.

ISBN: 978-0807070734

Marco Polo; The Travels of Marco Polo (ed. Peter Harris), Everyman's Library, 2008. ISBN: 978-0307269133

# Hum/H 010. Medieval Europe: The Problem of Violence.

Instructor: Warren Brown

### Required textbooks:

Sheingorn, Pamela; The Book of Sainte Foy, University of Pennsylvania, 1995. ISBN: 0812215125

Gregory of Tours, Thorpe, Lewis; The History of the Franks, Penguin Classics, 1976. ISBN: 978-0140442953

Warner, David A.; Ottonian Germany: The Chronicon of Thietmar of Merseburg, Manchester University Press, 2001. ISBN: 0719049253

Galbert of Bruges, Ross, James Bruce; The Murder of Charles the Good, Count of Flanders, Columbia

University Press, 2005. ISBN: 0-231-13671-4

Frossart, Jean, Brereton, Geoffrey; Chronicles, Penguin, 1978. ISBN: 9780140442007

### Hum114A. Spanish and Latin American Literature.

Instructor: Gloria Arjona

### Required textbooks:

Renjilian-Burgy, Joy, Valette Rebecca M.,; Album (4th Edition), Cengeage, 2014. ISBN: 978-1133941040

### **LANGUAGES**

### L 102A. Elementary French.

Instructor: Christiane Orcel

### Required textbooks:

Jansma, Kimberly and Kassen, Margaret Ann; *Motifs: An Introduction to French (6th)*, Heinle Cengage Learning, 2014. ISBN: 978-1-133-937456

Jansma, Kimberly and Kassen, Margaret Ann; Student Activities Manual: Motifs: An Introduction to French (2014), Heinle Cengage Learning, 6th. ISBN: 978-1-133-61180-6

## L 107A. Intermediate Japanese.

Instructor: Ritsuko Toner

### Required textbooks:

Hirai, Ritsuko; First Year Japanese, 6th ed. textbook First Year Japanese Workbook, 7th ed Package (6th), Pearson Educatio Inc., 2016. ISBN: 1323405283

# L 108A. Advanced Japanese.

Instructor: Ritsuko Toner

#### Required textbooks:

Ritsuko Hirai; Beyond the First Year Japanese (6th), Pearson Educatio Inc., 2010. ISBN: 978-0-558-52403-6

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

Instructor: Gloria Arjona

Rusch, Domínguez, Caycedo, Garner; *Imágenes (3rd Edition)*, Heinle Cengage Learning, . ISBN: 9781285054872

## L 110A (Section 1). Elementary Spanish.

Instructor: Daniel Garcia

### Required textbooks:

Debbie Rusch, Marcela Domínguez, Lucía Caycedo Garner; *Imágenes: An Introduction to Spanish Language and Cultures (3rd)*, Cengage Learning, 2014. ISBN: 9781285927145

### L 112A. Intermediate Spanish.

Instructor: Daniel Garcia

#### Required textbooks:

Samaniego, Fabian et al.; *Mundo 21. Espanol para el siglo 21 4th + iLrn™ Heinle Learning Center Printed Access Card 4th Edition (4th)*, Cengage / Heinle, 2012. ISBN: 978-1-111-70719-4

# L 114A. Spanish and Latin American Literature.

Instructor: Gloria Arjona

#### Required textbooks:

Renjilian-Burgy, Joy, Valette Rebecca M.,; Album (4th Edition), Cengeage, 2014. ISBN: 978-1133941040

### L 130A. Elementary German.

Instructor: Andreas Aebi

#### Required textbooks:

Forester, Daniuk; Auf Geht's (3rd), Live Oak Media, 2015. ISBN: 978-1-886553-51-4

#### L 132A. Intermediate German.

Instructor: Andreas Aebi

Forester, Daniuk; Weiter Geht's (3.3), Live Oak Media, 2014. ISBN: 978-1-886553

### L 170A. Introduction to Chinese.

Instructor: Xiangyun Wang

#### Required textbooks:

Liu, Yuehua, et al; *Integrated Chinese, Textbook, Level 1 Part 1 (3rd)*, Cheng Tsui, . ISBN: 9780887276385 Liu, Yuehua, et al; *Integrated Chinese, Workbook, Level 1 Part 1 (3rd)*, Cheng Tsui, . ISBN: 9780887276408

#### L 172A. Intermediate Chinese.

Instructor: Xiangyun Wang

#### Required textbooks:

Liu, Yuehua, et al; *Integrated Chinese, Textbook, Level 2 Part 1 (3rd)*, Cheng Tsui, . ISBN: 9780887276705 Liu, Yuehua, et al; *Integrated Chinese, Workbook, Level 2 Part 1 (3rd)*, Cheng Tsui, . ISBN: 9780887276743

# L/F 109. Introduction to French Cinema from Its Beginning to the Present.

Instructor: Christiane Orcel

#### Required textbooks:

Petrie, Dennis and Boggs, Joseph; *The Art of Watching Films (8th)*, McGraw-Hill, 2011. ISBN: 978-0073386171

# **MATHEMATICS**

# Ma 001A. Calculus of One and Several Variables and Linear Algebra.

Instructor: Dinakar Ramakrishnan

#### Required textbooks:

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

# Ma 001A (Ma 1a, Section 1). Calculus of One and Several Variables and Linear Algebra.

Instructor: Faramarz Vafaee

### Required textbooks:

Apostol, Tom; Calculus, Volume I, , . ISBN: 0-471-00005-1

### Ma 005A. Introduction to Abstract Algebra.

Instructor: Matthias Flach

#### Required textbooks:

Dummit, David S., Foote, Richard M.; Abstract Algebra (3rd), Wiley, 2004. ISBN: 978-0-471-43334-7

# Ma 105A. Introduction to Abstract Algebra.

Instructor: Matthias Flach

#### Required textbooks:

Dummit, David S., Foote, Richard M.; Abstract Algebra, , . ISBN: 978-0-471-43334-7

### Ma 108A. Classical Analysis.

Instructor:

#### Required textbooks:

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

# Ma 109A. Introduction to Geometry and Topology.

Instructor: Matilde Marcolli

#### Required textbooks:

James Munkres; Topology, Pearson, 2017. ISBN: 9780134689517

Allen Hatcher; Algebraic Topology, Cambridge University Press, 2001. ISBN: 9780521795401

## Ma 116A. Mathematical Logic and Axiomatic Set Theory.

Instructor:

#### Required textbooks:

Marker, David; Model Theory: An Introduction, , . ISBN: 978-0-387-22734-4

### Ma 120A. Abstract Algebra.

Instructor: Dinakar Ramakrishnan

#### Required textbooks:

Lang, Serge; Algebra, , . ISBN: 978-0387953854

# Ma 121A. Combinatorial Analysis.

Instructor: Eric Rains

### Required textbooks:

van Lint, J. H., Wilson, R.M.; A Course in Combinatorics, , . ISBN: 978-0521006019

# Ma 151A. Algebraic and Differential Topology.

Instructor: Yi Ni

### Required textbooks:

Hatcher, Allen; Algebraic Topology, Cambridge University Press, . ISBN: 978-0521795401

# **MUSIC**

# Mu 051. Understanding Music.

**Instructor**: Thomas Neenan

#### Required textbooks:

Kelly, Thomas Forrest; Music Then And Now, Norton, . ISBN: 978-0393929881

### Mu 137. History I: Music History to 1750.

Instructor: Thomas Neenan

### Required textbooks:

Freedman, Richard; Music in the Renaissance, Norton, 2013. ISBN: 978-0393929164

Heller, Wendy; Music in the Baroque (2014), Norton, . ISBN: 978-0393929171

### **PHYSICS**

### Ph 001A. Classical Mechanics and Electromagnetism.

Instructor: Jonas Zmuidzinas

### Required textbooks:

Frautschi, Steven, Olenick, Richard, Apostol, Tom, Goodstein, David; *The Mechanical Universe: Mechanics and Heat, Advanced Edition*, , . ISBN: 978-0521715904

#### Suggested textbooks:

Feynman, Richard; The Feynman Lectures on Physics (Vol I and II), , . ISBN: 978-0465023820

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

Instructor: Rana Adhikari

#### Required textbooks:

French, Tony; Vibrations and Waves, , 2003. ISBN: 8123909144

### Ph 003. Physics Laboratory.

Instructors: Eric Black, Kenneth Libbrecht

### Required textbooks:

Taylor, John R.; *An Introduction to Error Analysis (2)*, University Science Books, 1997. ISBN: 978-0-935702-75-0

# Ph 005. Analog Electronics for Physicists.

Instructors: Kenneth Libbrecht, Frank Rice

### Suggested textbooks:

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

Instructor: Xie Chen

#### Suggested textbooks:

Georgi, Howard; The Physics of Waves, , . ISBN: 0136656218

Crawford, Frank; Waves, , . ISBN: 0070048606

### Ph 106A. Topics in Classical Physics.

Instructor: Alan Weinstein

#### Required textbooks:

L.N. Hand and J.D. Finch; *Analytical Mechanics (1)*, Cambridge University Press, 1998. ISBN: 978-0521575720

### Ph 127A. Statistical Physics.

Instructor: Olexei Motrunich

#### Suggested textbooks:

M. Kardar; Statistical Physics of Particles., Cambridge University Press, 2007. ISBN: 9780521873420

# Ph 135A. Applications of Quantum Mechanics.

**Instructor**: Nai-Chang Yeh

#### Suggested textbooks:

Ziman, J. M.; *Principles of the Theory of Solids (Second)*, Cambridge University Press, 1972. ISBN: 0-521-29733-8

Ashcroft, N. W., Mermin, N. D.; Solid State Physics, W. B. Saunders Company, 1976. ISBN: 978-0-03-083993-1

# Ph 205A. Relativistic Quantum Field Theory.

Instructor: Anton Kapustin

Srednicki, M; Quantum Field Theory, , . ISBN: 978-0521864497

### **POLITICAL SCIENCE**

### PS 121. Analyzing Congress.

Instructor: Alexander Hirsch

#### Required textbooks:

Stewart, Charles; Analyzing Congress (2), W. W. Norton Company, 2011. ISBN: 978-0393935066

Davidson, Roger, Oleszek, Walter, Lee, Frances, Schickler, Eric; Congress and Its Members (14th Edition), CQ

Press, 2013. ISBN: 978-1452239958

## PS 135. Analyzing Legislative Elections.

Instructor: Jonathan Katz

#### Required textbooks:

Cox, Gary; Making Votes Count: Strategic Coordinate in the World's Electoral Systems., Cambridge University Press, 1997. ISBN: 9780521585279

Cox, Gary W., Katz, Jonathan N.; *Elbridge Gerry's Salamander: The Electoral Consequences of the Reapportionment Revolution.*, Cambridge University Press., 202. ISBN: 9780521001540

Jacobson, Gary C., Carson, Jamie L.; *The Politics of Congressional Elections (9th)*, Rowman Lifflefield., 2016. ISBN: 978-1-4422-5262-2

Morton, Rebecca; Analyzing Elections, Norton, 2006. ISBN: 978-0-393-97829-2

# **SOCIAL SCIENCE**

### SS 202A. Political Theory.

Instructor: Alexander Hirsch

### Required textbooks:

Austen-Smith, David, Banks, Jeffrey S.; *Positive Political Theory I: Collective Preference*, , . ISBN: 978-0472087211