The Art of Philosophy
Visual Thinking in Europe from the Late Renaissance to the Early Enlightenment

SUSANNA BERGER

Delving into the intersections between artistic images and philosophical knowledge in Europe from the late sixteenth to the early eighteenth centuries, The Art of Philosophy shows that the making and study of visual art functioned as important methods of philosophical thinking and instruction. From frontispieces of books to monumental prints created by philosophers in collaboration with renowned artists, Susanna Berger examines visual representations of philosophy and overturns prevailing assumptions about the limited function of the visual in European intellectual history.

Rather than merely illustrating already existing philosophical concepts, visual images generated new knowledge for both Aristotelian thinkers and anti-Aristotelians, such as Descartes and Hobbes. Printmaking and drawing played a decisive role in discoveries that led to a move away from the authority of Aristotle in the seventeenth century. Berger interprets visual art from printed books, student lecture notebooks, alba amicorum (friendship albums), broadsides, and paintings, and examines the work of such artists as Pietro Testa, Léonard Gaultier, Abraham Bosse, Dürer, and Rembrandt. In particular, she focuses on the rise and decline of the “plural image,” a genre that was popular among early modern philosophers. Plural images brought multiple images together on the same page, often in order to visualize systems of logic, metaphysics, natural philosophy, or moral philosophy.

Featuring previously unpublished prints and drawings from the early modern period and lavish gatefolds, The Art of Philosophy reveals the essential connections between visual commentary and philosophical thought.

Susanna Berger is assistant professor of art history at the University of Southern California.
Gillian Wearing and Claude Cahun
Behind the Mask, Another Mask

SARAH HOWGATE
With an essay by Dawn Ades

This beautifully illustrated book draws together for the first time the self-portraits of French surrealist artist Claude Cahun (1894–1954) and British contemporary artist Gillian Wearing (b. 1963). Although they were born almost a century apart, their work shares similar themes—gender, identity, masquerade, and performance.

In 2015, Sarah Howgate traveled with Wearing to the island of Jersey, in the English Channel, where Cahun lived and worked until her death, and where her archive is housed. In examining Cahun’s photographic self-portraits, Wearing was struck by the remarkable parallels with her own explorations of the self-image through photography. Cahun was a contemporary of André Breton and Man Ray, but her work was rarely exhibited during her lifetime. Wearing, who has exhibited extensively and is a recipient of Britain’s prestigious Turner Prize, was no stranger to Cahun’s work when she made the trip to Jersey—her 2012 self-portrait, Me as Cahun Holding a Mask of My Face, is a reconstruction of Cahun’s iconic Self-Portrait, made in 1927. In this book, Howgate examines the self-portrait work of both artists, investigating how their cultural, historical, political, and personal contexts have affected their interpretations of similar themes.

Gillian Wearing and Claude Cahun features stunning reproductions of more than one hundred key works, presented thematically by artistic evolution, performance, masquerade, and memento mori. The book also includes new “collaborations” by Wearing with Cahun, a revealing interview with Wearing by Howgate, and an illuminating essay on Cahun by writer and curator Dawn Ades.

Sarah Howgate is contemporary curator at the National Portrait Gallery, London. She is the coauthor of 21st-Century Portraits and The Portrait Now. Dawn Ades is professor emerita of art history at the University of Essex and the author of Art in Latin America: The Modern Era, 1820–1980, among many other books.

Published in association with the National Portrait Gallery, London

MAY
978-0-691-17662-8 Cloth $39.50S
208 pages. 91 color illus. 60 halftones. 8 x 10.
For sale only in the United States and Canada

ART | PHOTOGRAPHY
Traditional Chinese Architecture
Twelve Essays

FU XINIAN
Edited by Nancy S. Steinhardt
Translated by Alexandra Harrer

Fu Xinian is considered by many to be the world’s leading historian of Chinese architecture. He is an expert on every type of Chinese architecture from every period through the nineteenth century, and his work is at the cutting edge of the field. Traditional Chinese Architecture gathers together, for the first time in English, twelve seminal essays by Fu Xinian. This wide-ranging book pays special attention to the technical aspects of the building tradition since the first millennium BC, and Fu Xinian’s signature drawings abundantly illustrate its nuances.

The essays delve into the modular basis for individual structures, complexes, and cities; lateral and longitudinal building frames; the unity of sculpture and building to create viewing angles; the influence of Chinese construction on Japanese architecture; and the reliability of images to inform us about architecture. Organized chronologically, the book also examines such topics as the representation of architecture on vessels in the Warring States period, early Buddhist architecture, and the evolution of imperial architecture from the Tang to Ming dynasty. A biography of Fu Xinian and a detailed Chinese-English glossary are included.

Bringing together some of the most groundbreaking scholarship in Chinese architectural history, Traditional Chinese Architecture showcases an uncontested master of the discipline.

Fu Xinian is professor of Chinese architecture at Tsinghua University. This is his first full-length book in English. Works that have appeared in Chinese include Architectural History, Chinese Ancient Architecture, and Ancient Chinese Architectural History. Nancy S. Steinhardt is professor of East Asian art and curator of Chinese art at the University of Pennsylvania. Her books include Chinese Architecture in an Age of Turmoil and China’s Early Mosques.

JUNE
978-0-691-15999-7 Cloth $49.95S
448 pages. 150 line illus. 7 1/2 x 9 3/4.

The Princeton-China Series
Daniel A. Bell, Series Editor

ARCHITECTURE | ASIAN STUDIES
The Greeks and Romans lived according to a distinctively Hellenic conception of time as an aspect of cosmic order and regularity. Appropriating ideas from Egypt and the Near East, the Greeks integrated them into a cosmological framework governed by mathematics and linking the cycles of the heavenly bodies to the human environment. From their cosmology they derived instruments for measuring and tracking the passage of time that were sophisticated embodiments of scientific reasoning and technical craft, meant not solely for the study of specialists and connoisseurs but for the public gaze.

Time and Cosmos in Greco-Roman Antiquity, the accompanying catalogue for the exhibition at the Institute for the Study of the Ancient World, New York University, explores through thematic essays and beautiful illustrations the practical as well as the artistic, ideological, and spiritual role of time technology and time imagery in the Mediterranean civilizations. Highlights among the more than one hundred objects from the exhibition include marvelously inventive sundials and portable timekeeping devices, stone and ceramic calendars, zodiac boards for displaying horoscopes, and mosaics, sculptures, and coins that reflect ancient perceptions of the controlling power of time and the heavens.

Alexander R. Jones is professor of the history of the exact sciences in antiquity at the Institute for the Study of the Ancient World at New York University.
MATTHEW SIMONTON

Classical Greek Oligarchy thoroughly reassesses an important but neglected form of ancient Greek government, the “rule of the few.” Matthew Simonton challenges scholarly orthodoxy by showing that oligarchy was not the default mode of politics from time immemorial, but instead emerged alongside, and in reaction to, democracy. He establishes for the first time how oligarchies maintained power in the face of potential citizen resistance. The book argues that oligarchs designed distinctive political institutions—such as intra-oligarchic power sharing, targeted repression, and rewards for informants—to prevent collective action among the majority population while sustaining cooperation within their own ranks.

The book investigates topics such as control of public space, the manipulation of information, and the establishment of patron-client relations, frequently citing parallels with contemporary nondemocratic regimes. Simonton also traces changes over time in antiquity. Classical Greek Oligarchy represents a major new development in the study of ancient politics. It fills a longstanding gap in our knowledge of nondemocratic government while greatly improving our understanding of forms of power that continue to affect us today.

Matthew Simonton is assistant professor of history in the School of Humanities, Arts, and Cultural Studies at Arizona State University.

JULY
978-0-691-17497-6 Cloth $45.00S
320 pages. 1 map. 6 x 9.

ANCIENT HISTORY | CLASSICS | POLITICS

CRAIGE B. CHAMPION

The Peace of the Gods takes a new approach to the study of Roman elites’ religious practices and beliefs, using current theories in psychology, sociology, and anthropology, as well as cultural and literary studies. Craige Champion focuses on what the elites of the Middle Republic (ca. 250–ca. 100 BCE) actually did in the religious sphere, rather than what they merely said or wrote about it, in order to provide a more nuanced and satisfying historical reconstruction of what their religion may have meant to those who commanded the Roman world and its imperial subjects.

The book examines the nature and structure of the major priesthoods in Rome itself, Roman military commanders’ religious behaviors in dangerous field conditions, and the state religion’s acceptance or rejection of new cults and rituals in response to external events that benefited or threatened the Republic. According to a once-dominant but now-outmoded interpretation of Roman religion that goes back to the ancient Greek historian Polybius, the elites didn’t believe in their gods but merely used religion to control the masses. Using that interpretation as a counterfactual lens, Champion argues instead that Roman elites sincerely tried to maintain Rome’s good fortune through a pax deorum or “peace with the gods.” The result offers rich new insights into the role of religion in elite Roman life.

Craige B. Champion is professor of ancient history and classics in the Maxwell School of Citizenship and Public Affairs at Syracuse University. He is the author of Cultural Politics in Polybius’s Histories and the editor of Roman Imperialism: Readings and Sources.

APRIL
978-0-691-17485-3 Cloth $39.95S
288 pages. 6 x 9.

ANCIENT HISTORY | CLASSICS
Strange Vernaculars
How Eighteenth-Century Slang, Cant, Provincial Languages, and Nautical Jargon Became English

JANET SORENSEN

While eighteenth-century efforts to standardize the English language have long been studied—from Samuel Johnson’s Dictionary to grammar and elocution books of the period—less well-known are the era’s popular collections of odd slang, criminal argots, provincial dialects, and nautical jargon. Strange Vernaculars delves into how these published works presented the supposed lexicons of the “common people” and traces the ways that these languages, once shunned and associated with outsiders, became objects of fascination in printed glossaries—from The New Canting Dictionary to Francis Grose’s Classical Dictionary of the Vulgar Tongue—and in novels, poems, and songs, including works by Daniel Defoe, John Gay, Samuel Richardson, Robert Burns, and others.

Janet Sorensen argues that the recognition and recovery of outsider languages was part of a transition in the eighteenth century from an aristocratic, exclusive body politic to a British national community based on the rhetoric of inclusion and liberty, as well as the revaluing of a common British past. These representations of the vernacular made room for the “common people” within national culture, but only after representing their language as “strange.” Such strange and estranged languages, even or especially in their obscurity, came to be claimed as British, making for complex imaginings of the nation and those who composed it. Odd cant languages, witty slang phrases, provincial terms newly valued for their connection to British history, or nautical jargon repurposed for sentimental connections all toggle, in eighteenth-century jest books, novels, and poems, between the alluringly alien and familiarly British.

Shedding new light on the history of the English language, Strange Vernaculars explores how eighteenth-century British literature transformed the patois attributed to those on the margins into living symbols of the nation.

Janet Sorensen is associate professor of English at the University of California, Berkeley. She is the author of The Grammar of Empire in Eighteenth-Century British Writing.

“Any student of eighteenth-century English literature and culture is aware to some extent of the important presence, or significant absence, of the regional or provincial speech in the literature of that period. But no one as far as I know has produced an authoritative, comprehensive, and fine-grained study of these vocabularies and what they signify and imply. This is a major, pathbreaking book.”
—John Richetti, University of Pennsylvania

Examples of slang from Strange Vernaculars:

- **bum-boat woman**: one who sells bread, cheese, greens, and liquor to sailors from a small boat alongside a ship
- **collar day**: execution day
- **crewnting**: groaning, like a grunting horse
- **gentleman’s companion**: lice
- **gingerbread-work**: gilded carvings of a ship’s bow and stern
- **luggs**: ears
- **mort**: a large amount
- **throw**: to argue hotly and loudly

How vocabularies once associated with outsiders became objects of fascination in eighteenth-century Britain
The nineteenth century introduced developments in science and medicine that made the eradication of pain conceivable for the first time. This new understanding of pain brought with it a complex set of moral and philosophical dilemmas. If pain serves no obvious purpose, how do we reconcile its existence with a well-ordered universe? Examining how writers of the day engaged with such questions, *Victorian Pain* offers a compelling new literary and philosophical history of modern pain.

Rachel Ablow provides close readings of novelists Charlotte Brontë and Thomas Hardy and political and natural philosophers John Stuart Mill, Harriet Martineau, and Charles Darwin, as well as a variety of medical, scientific, and popular writers of the Victorian age. She explores how discussions of pain served as investigations into the status of persons and the nature and parameters of social life. No longer conceivable as divine trial or punishment, pain in the nineteenth century came to seem instead like a historical accident suggesting little or nothing about the individual who suffers.

A landmark study of Victorian literature and the history of pain, *Victorian Pain* shows how these writers came to see pain as a social as well as a personal problem. Rather than simply self-evident to the sufferer and unknowable to anyone else, pain was also understood to be produced between persons—and even, perhaps, by the fictions they read.

Rachel Ablow is associate professor of English at the University at Buffalo, State University of New York. She is the author of *The Marriage of Minds: Reading Sympathy in the Victorian Marriage Plot* and the editor of *The Feeling of Reading*.

In *Ladies’ Greek*, Yopie Prins illuminates a culture of female classical literacy that emerged in the second half of the nineteenth century, during the formation of women’s colleges on both sides of the Atlantic. Why did Victorian women of letters desire to learn ancient Greek, a “dead” language written in a strange alphabet and no longer spoken? In the words of Elizabeth Barrett Browning, they wrote “some Greek upon the margin—lady’s Greek, without the accents.” Yet in the margins of classical scholarship they discovered other ways of knowing, and not knowing, Greek. Mediating between professional philology and the popularization of classics, these passionate amateurs became an important medium for classical transmission.

Combining archival research on the entry of women into Greek studies in Victorian England and America with a literary interest in their translations of Greek tragedy, Prins demonstrates how women turned to this genre to perform a passion for ancient Greek, full of eros and pathos. She focuses on five tragedies—*Agamemnon*, *Prometheus Bound*, *Electra*, *Hippolytus*, and *The Bacchae*—to analyze a wide range of translational practices by women and to explore the ongoing legacy of Ladies’ Greek. Key figures in this story include Barrett Browning and Virginia Woolf, Janet Case and Jane Harrison, Edith Hamilton and Eva Palmer, and A. Mary F. Robinson and H.D.


Yopie Prins is professor of English and comparative literature at the University of Michigan.
Getting Tough
Welfare and Imprisonment in 1970s America

JULILLY KOHLER-HAUSMANN

In 1970s America, politicians began “getting tough” on drugs, crime, and welfare. These campaigns helped expand the nation’s penal system, discredit welfare programs, and cast blame for the era’s social upheaval on racialized deviants that the state was not accountable to serve or represent. Getting Tough sheds light on how this unprecedented growth of the penal system and the evisceration of the nation’s welfare programs developed hand in hand. Julilly Kohler-Hausmann shows that these historical events were animated by struggles over how to interpret and respond to the inequality and disorder that crested during this period.

When social movements and the slowing economy destabilized the U.S. welfare state, politicians reacted by repudiating the commitment to individual rehabilitation that had governed penal and social programs for decades. In its place, they championed strategies of punishment, surveillance, and containment. The architects of these tough strategies insisted they were necessary, given the failure of liberal social programs and the supposed pathological culture within poor African American and Latino communities. Kohler-Hausmann rejects this explanation and describes how the spectacle of enacting punitive policies convinced many Americans that social investment was counterproductive and the “underclass” could be managed only through coercion and force.

Getting Tough illuminates this narrative through three legislative cases: New York’s adoption of the 1973 Rockefeller drug laws, Illinois’s and California’s attempts to reform welfare through criminalization and work mandates, and California’s passing of a 1976 sentencing law that abandoned rehabilitation as an aim of incarceration. Weaving together the perspectives of opponents, supporters, and targets of punitive policies, Getting Tough offers new interpretations of dramatic transformations in the modern American state.

Julilly Kohler-Hausmann is assistant professor of history at Cornell University.

MAY
978-0-691-17452-5 Cloth $35.00S
288 pages. 7 line illus. 6 x 9.
Politics and Society in Modern America
William Chafe, Gary Gerstle, Linda Gordon & Julian Zelizer, Series Editors

The politics and policies that led to America’s expansion of the penal system and reduction of welfare programs

“This is an original, sweeping look at the political history of policies within the criminal justice and welfare domain, and the political choices that transformed the nation’s approach to the poor. Most books either deal with the history of public assistance or the history of penal and sentencing reforms. Getting Tough goes further than any other book to document the interplay of dominant state approaches in both arenas.”
—Vesla M. Weaver, Yale University

“Getting Tough makes important, creative interventions in major debates regarding political history, social policy formation, the origins of mass incarceration, and the links between the carceral and welfare states. The insights of the book’s three case studies are powerful and sophisticated and provide the foundation for a pioneering reassessment of the prevailing narratives regarding law-and-order politics and criminalization during the 1960s and 70s.”
—Matthew Lassiter, University of Michigan
America in Italy
The United States in the Political Thought and Imagination of the Risorgimento, 1763–1865

AXEL KÖRNER

America in Italy examines the influence of the American political experience on the imagination of Italian political thinkers between the late eighteenth century and the unification of Italy in the 1860s. Axel Körner shows that Italian political thought was shaped by debates about the American Revolution and the U.S. Constitution, but he focuses on the important distinction that while European interest in developments across the Atlantic was keen, this attention was not blind admiration. Rather, America became a sounding board for the critical assessment of societal changes at home.

Many Italians did not think the United States had lessons to teach them and often concluded that life across the Atlantic was not just different but in many respects also objectionable. In America, utopia and dystopia seemed to live side by side, and Italian references to the United States were frequently in support of progressive or reactionary causes. Political thinkers including Cesare Balbo, Carlo Cattaneo, Giuseppe Mazzini, and Antonio Rosmini used the United States to shed light on the course of their nation’s political resurgence. Concepts from Montesquieu, Rousseau, and Vico served to evaluate what Italians discovered about America. Ideas about American “domestic manners” were reflected and conveyed through works of ballet, literature, opera, and satire.

Transcending boundaries between intellectual and cultural history, America in Italy is the first book-length examination of the influence of America’s political formation on modern Italian political thought.

Axel Körner is professor of modern history at University College London.

JUNE
978-0-691-16485-4 Cloth $45.00S
352 pages. 16 halftones. 1 map. 6 x 9.

HISTORY | EUROPEAN HISTORY

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Chosen Nation
Mennonites and Germany in a Global Era

BENJAMIN W. GOOSSEN

During the nineteenth and twentieth centuries, the global Mennonite church developed an uneasy relationship with Germany. Despite the religion’s origins in the Swiss and Dutch Reformation, as well as its longstanding pacifism, tens of thousands of members embraced militarist German nationalism. Chosen Nation is a sweeping history of this encounter and the debates it sparked among parliaments, dictatorships, and congregations across Eurasia and the Americas.

Benjamin Goossen demonstrates how Mennonites’ nationalization reflected and reshaped their faith convictions. While some church leaders modified German identity along Mennonite lines, others appropriated nationalism wholesale, advocating a specifically Mennonite version of nationhood. Examining sources from Poland to Paraguay, Goossen shows how patriotic loyalties rose and fell with religious affiliation. Individuals might claim to be German at one moment but Mennonite the next. Some external parties encouraged separatism, as when the Weimar Republic helped establish an autonomous “Mennonite State” in Latin America. Still others treated Mennonites as quintessentially German; under Hitler’s Third Reich, entire colonies benefited from racial warfare and genocide in Nazi-occupied Ukraine. Whether choosing Germany as a national homeland or identifying as a chosen people, called and elected by God, Mennonites committed to collective action in ways that were intricate, fluid, and always surprising.

Benjamin W. Goossen is a scholar of global religious history at Harvard University.

JUNE
978-0-691-17428-0 Cloth $49.50S
256 pages. 15 halftones. 1 line illus. 1 table. 4 maps. 6 x 9.

HISTORY | RELIGION
The First Serious Optimist
A. C. Pigou and the Birth of Welfare Economics

IAN KUMEKAWA

The First Serious Optimist is an intellectual biography of the British economist A. C. Pigou (1877–1959), a founder of welfare economics and one of the twentieth century’s most important and original thinkers. Though long overshadowed by his intellectual rival John Maynard Keynes, Pigou was instrumental in focusing economics on the public welfare. And his reputation is experiencing a renaissance today, in part because his idea of “externalities” or spillover costs is the basis of carbon taxes. Drawing from a wealth of archival sources, Ian Kumekawa tells how Pigou reshaped the way the public thinks about the economic role of government and the way economists think about the public good.

Setting Pigou’s ideas in their personal, political, social, and ethical context, the book follows him as he evolved from a liberal Edwardian bon vivant to a reserved but reform-minded economics professor. With World War I, Pigou entered government service, but soon became disenchanted with the state he encountered. As his ideas were challenged in the interwar period, he found himself increasingly alienated from his profession. But with the rise of the Labour Party following World War II, the elderly Pigou re-embraced a mind-set that inspired a colleague to describe him as “the first serious optimist.”

The story not just of Pigou but also of twentieth-century economics, The First Serious Optimist explores the biographical and historical origins of some of the most important economic ideas of the past hundred years. It is a timely reminder of the ethical roots of economics and the discipline’s long history as an active intermediary between the state and market.

Ian Kumekawa is a PhD candidate in history at Harvard University, where he works on the history of economic thinking.

JUNE
978-0-691-16348-2 Cloth $35.00S
352 pages. 6 halftones. 6 x 9.

HISTORY | ECONOMICS
Banu Turnaoğlu challenges this view, showing how Turkish republicanism represents the outcome of centuries of intellectual dispute in Turkey over Islamic and liberal conceptions of republicanism, culminating in the victory of Kemalism in the republic’s formative period.

Drawing on a wealth of rare archival material, Turnaoğlu presents the first complete history of republican thinking in Turkey from the birth of the Ottoman state to the founding of the modern republic. She shows how the Kemalists wrote Turkish history from their own perspective, presenting their own version of republicanism as inevitable while disregarding the contributions of competing visions. Turnaoğlu demonstrates how republicanism has roots outside the Western political experience, broadening our understanding of intellectual history. She reveals how the current crises in Turkish politics—including the Kurdish Question, democratic instability, the rise of radical Islam, and right-wing Turkish nationalism—arise from intellectual tensions left unresolved by Kemalist ideology.

Banu Turnaoğlu is a postdoctoral research associate in the Department of Politics and International Studies at the University of Cambridge.
During and after the Second World War, public intellectuals in Britain and the United States grappled with concerns about the future of democracy, the prospects of liberty, and the decline of the imperial system. Without using the term “globalization,” they identified a shift toward technological, economic, cultural, and political interconnectedness and developed a “globalist” ideology to reflect this new postwar reality. The Emergence of Globalism examines the competing visions of world order that shaped these debates and led to the development of globalism as a modern political concept.

Shedding critical light on this neglected chapter in the history of political thought, Or Rosenboim describes how a transnational network of globalist thinkers emerged from the traumas of war and expatriation in the 1940s and how their ideas drew widely from political philosophy, geopolitics, economics, imperial thought, constitutional law, theology, and philosophy of science. She presents compelling portraits of Raymond Aron, Owen Lattimore, Lionel Robbins, Barbara Wootton, Friedrich Hayek, Lionel Curtis, Richard McKeon, Michael Polanyi, Lewis Mumford, Jacques Maritain, Reinhold Niebuhr, H. G. Wells, and others. Rosenboim shows how the globalist debate they embarked on sought to balance the tensions between a growing recognition of pluralism on the one hand and an appreciation of the unity of humankind on the other.

An engaging look at the ideas that have shaped today’s world, The Emergence of Globalism is a major work of intellectual history that is certain to fundamentally transform our understanding of the globalist ideal and its origins.

Or Rosenboim is a research fellow in politics at Queens’ College, University of Cambridge. She was awarded the prestigious Prix Raymond Aron in 2014.

How competing visions of world order in the 1940s gave rise to the modern concept of globalism

“The best study ever written on English-language global thought in the 1940s. Rosenboim’s insightful, cutting-edge book will enjoy a lasting impact.”
—Samuel Moyn, author of The Last Utopia: Human Rights in History

“A pleasure to read. This excellent book stands out as a major contribution to our growing understanding of the history of twentieth-century international thought. Rosenboim forces us to rethink that history, and by implication how we interpret international relations today.”
—Lucian M. Ashworth, author of A History of International Thought
A sophisticated, original introduction to the philosophy of mathematics from one of its leading contemporary scholars.

“This is an excellent introduction to the philosophy of mathematics, with clear and careful coverage of both traditional topics and cutting-edge contemporary debates.” —Roy T. Cook, University of Minnesota

“This is a good introduction to the philosophy of mathematics—clear and concise, and with original observations and a coherent point of view.” —John P. Burgess, Princeton University

Philosophy of Mathematics

ØYSTEIN LINNEBO

Mathematics is one of humanity’s most successful yet puzzling endeavors. It is a model of precision and objectivity, but appears distinct from the empirical sciences because it seems to deliver nonexperiential knowledge of a nonphysical reality of numbers, sets, and functions. How can these two aspects of mathematics be reconciled? This concise book provides a systematic yet accessible introduction to the field that is trying to answer that question: the philosophy of mathematics.

Written by Øystein Linnebo, one of the world’s leading scholars on the subject, the book introduces all of the classical approaches to the field, including logicism, formalism, intuitionism, empiricism, and structuralism. It also contains accessible introductions to some more specialized issues, such as mathematical intuition, potential infinity, the iterative conception of sets, and the search for new mathematical axioms. The groundbreaking work of German mathematician and philosopher Gottlob Frege, one of the founders of analytic philosophy, figures prominently throughout the book. Other important thinkers whose work is introduced and discussed include Immanuel Kant, John Stuart Mill, David Hilbert, Kurt Gödel, W. V. Quine, Paul Benacerraf, and Hartry H. Field.

Sophisticated but clear and approachable, this is an essential introduction for all students and teachers of philosophy, as well as mathematicians and others who want to understand the foundations of mathematics.

Øystein Linnebo is professor of philosophy at the University of Oslo, and previously held positions in Bristol, London, and Oxford. He is the coeditor of New Waves in the Philosophy of Mathematics and the author of Thin Objects: An Abstractionist Approach (forthcoming).

JUNE
978-0-691-16140-2 Cloth $29.95
208 pages. 5 ½ x 8 ½.

Princeton Foundations of Contemporary Philosophy
Scott Soames, Series Editor

PHILOSOPHY | MATHEMATICS
Quantitative Social Science
An Introduction

KOSUKE IMAI

Quantitative analysis is an increasingly essential skill for social science research, yet students in the social sciences and related areas typically receive little training in it—or if they do, they usually end up in statistics classes that offer few insights into their field. This textbook is a practical introduction to data analysis and statistics written especially for undergraduates and beginning graduate students in the social sciences and allied fields, such as economics, sociology, public policy, and data science.

Quantitative Social Science engages directly with empirical analysis, showing students how to analyze data using the R programming language and to interpret the results—it encourages hands-on learning, not paper-and-pencil statistics. More than forty data sets taken directly from leading quantitative social science research illustrate how data analysis can be used to answer important questions about society and human behavior.

This one-of-a-kind textbook features numerous additional data analysis exercises and interactive R programming exercises, and also comes with supplementary teaching materials for instructors.

- Written especially for students in the social sciences and allied fields, including economics, sociology, public policy, and data science
- Provides hands-on instruction using R programming, not paper-and-pencil statistics
- Includes more than forty data sets from actual research
- Covers data analysis concepts such as causality, measurement, and prediction, as well as probability and statistical tools
- Features a wealth of supplementary exercises
- Comes with additional course materials online, including notes, sample code, problem sets with solutions, and lecture slides

Kosuke Imai is professor of politics and founding director of the Program in Statistics and Machine Learning at Princeton University.

MARCH
978-0-691-17546-1 Paper $49.50X
978-0-691-16703-9 Cloth $95.00X
424 pages. 16 color illus. 9 halftones. 77 line illus. 7 x 10.

An introductory textbook on data analysis and statistics written especially for students in the social sciences and allied fields

“Imai’s fantastic textbook provides a succinct but thorough introduction to quantitative methods and how they are applied to social science problems. The text is easy to read while also providing material that is generally pitched at a level appropriate for newcomers to the subject.”
—Justin Grimmer, Stanford University

“Imai’s text is engaging and full of examples. It will be widely taught and will have a wide impact. Anyone who really masters the skills and concepts presented here will know statistics better than many professional political scientists.”
—Andrew Eggers, University of Oxford

Social Sciences 119
Money Talks
Explaining How Money Really Works

EDITED BY NINA BANDELJ, FREDERICK F. WHERRY & VIVIANA A. ZELIZER

The world of money is being transformed as households and organizations face changing economies and new currencies and payment systems like Bitcoin and Apple Pay gain ground. What is money, and how do we make sense of it? *Money Talks* is the first book to offer a wide range of alternative and unexpected explanations of how social relations, emotions, moral concerns, and institutions shape how we create, mark, and use money. This collection brings together a stellar group of international experts from multiple disciplines—sociology, economics, history, law, anthropology, political science, and philosophy—to propose fresh explanations for money’s origins, uses, effects, and future.

*Money Talks* explores five key questions: How do social relationships, emotions, and morals shape how people account for and use their money? How do corporations infuse social meaning into their financing and investment practices? What are the historical, political, and social foundations of currencies? When does money become contested, and are there things money shouldn’t buy? What is the impact of the new twenty-first-century currencies on our social relations?

At a time of growing concern over financial inequality, *Money Talks* overturns conventional views about money by revealing its profound social potential.

Nina Bandelj is professor of sociology and equity advisor to the dean of social sciences at the University of California, Irvine. Frederick F. Wherry is professor of sociology and codirector of the Center for Cultural Sociology at Yale University. Viviana A. Zelizer is the Lloyd Cotsen ’50 Professor of Sociology at Princeton University.

MAY
978-0-691-16868-5 Cloth $45.00S
264 pages. 2 halftones. 1 line illus. 6 x 9.

SOCIeLOGY | ECOnOMICS

Under the Cover
The Creation, Production, and Reception of a Novel

CLAYTON CHILDRESS

*Under the Cover* follows the life trajectory of a single work of fiction from its initial inspiration to its reception by reviewers and readers. The subject is *Jarrettsville*, a historical novel by Cornelia Nixon, which was published in 2009 and based on an actual murder committed by an ancestor of Nixon’s in the postbellum South.

Clayton Childress takes you behind the scenes to examine how *Jarrettsville* was shepherded across three interdependent fields—authoring, publishing, and reading—and how it was transformed by its journey. Along the way, he covers all aspects of the life of a book, including the author’s creative process, the role of the literary agent, how editors decide which books to acquire, how publishers build lists and distinguish themselves from other publishers, how they sell a book to stores and publicize it, and how authors choose their next projects. Childress looks at how books get selected for the front tables in bookstores, why reviewers and readers can draw such different meanings from the same novel, and how book groups across the country make sense of a novel and what it means to them.

Drawing on original survey data, in-depth interviews, and groundbreaking ethnographic fieldwork, *Under the Cover* reveals how decisions are made, inequalities are reproduced, and novels are built to travel in the creation, production, and consumption of culture.

Clayton Childress is assistant professor of sociology at the University of Toronto.

JULY
978-0-691-16038-2 Cloth $35.00S
296 pages. 32 line illus. 6 x 9.

Princeton Studies in Cultural Sociology
Paul J. DiMaggio, Michèle Lamont, Robert J. Wuthnow, and Viviana A. Zelizer, Series Editors

SOCIeLOGY | LITERature
Disruptive Fixation
School Reform and the Pitfalls of Techno-Idealism

CHRISTO SIMS

In New York City in 2009, a new kind of public school opened its doors to its inaugural class of middle schoolers. Conceived by a team of game designers and progressive educational reformers and backed by prominent philanthropic foundations, it promised to reinvent the classroom for the digital age. Ethnographer Christo Sims documented the life of the school from its planning stages to the graduation of its first eighth-grade class. Disruptive Fixation is his account of how this “school for digital kids,” heralded as a model of tech-driven educational reform, reverted to a more conventional type of schooling with rote learning, an emphasis on discipline, and traditional hierarchies of authority.

Sims shows how the philanthropic possibilities of new media technologies are repeatedly idealized even though actual interventions routinely fall short of the desired outcomes—often dramatically so. He traces the complex processes by which idealistic tech-reform perennially takes root, unsettles the worlds into which it intervenes, and eventually stabilizes in ways that remake and extend many of the social predicaments reformers hope to fix.

Disruptive Fixation offers a timely examination of techno-philanthropism and the yearnings and dilemmas it seeks to address, revealing what failed interventions do manage to accomplish—and for whom.

Christo Sims is assistant professor of communication and a founding member of the Studio for Ethnographic Design at the University of California, San Diego.

APRIL
978-0-691-16399-4 Paper $27.95S
978-0-691-16398-7 Cloth $80.00S
224 pages. 1 line illus. 1 table. 6 x 9.
Princeton Studies in Culture and Technology
Tom Boellstorff and Bill Maurer, Series Editors

ANTHROPOLOGY | EDUCATION
Continuous-Time Models in Corporate Finance
A User's Guide

SANTIAGO MORENO-BROMBERG & JEAN-CHARLES ROCHET

Continuous-Time Models in Corporate Finance synthesizes four decades of research to show how stochastic calculus can be used in corporate finance. Combining mathematical rigor with economic intuition, Santiago Moreno-Bromberg and Jean-Charles Rochet analyze corporate decisions such as dividend distribution, the issuance of securities, and capital structure and default. They pay particular attention to financial intermediaries, including banks and insurance companies.

The authors begin by recalling the ways that option-pricing techniques can be employed for the pricing of corporate debt and equity. They then present the dynamic model of the trade-off between taxes and bankruptcy costs and derive implications for optimal capital structure. The core chapter introduces the workhorse liquidity-management model—where liquidity and risk management decisions are made in order to minimize the costs of external finance. This model is used to study corporate finance decisions and specific features of banks and insurance companies. The book concludes by presenting the dynamic agency model, where financial frictions stem from the lack of interest alignment between a firm’s manager and its financiers. The appendix contains an overview of the main mathematical tools used throughout the book.

Santiago Moreno-Bromberg is senior research associate in the Center for Finance and Insurance at the University of Zurich. Jean-Charles Rochet is professor of banking at the University of Zurich, senior chair and head of research at the Swiss Finance Institute, and research director at the Toulouse School of Economics.

JULY
978-0-691-17652-9  Cloth  $45.00S
200 pages. 15 line illus. 5 ½ x 8 ½.

ECONOMICS | FINANCE

122  Economics

Matching with Transfers
The Economics of Love and Marriage

PIERRE-ANDRÉ CHIAPPORI

Over the past few decades, matching models, which use mathematical frameworks to analyze allocation mechanisms for heterogeneous products and individuals, have attracted renewed attention in both theoretical and applied economics. These models have been used in many contexts, from labor markets to organ donations, but recent work has tended to focus on “nontransferable” cases rather than matching models with transfers. In this important book, Pierre-André Chiappori fills a gap in the literature by presenting a clear and elegant overview of matching with transfers and provides a set of tools that enable the analysis of matching patterns in equilibrium, as well as a series of extensions. He then applies these tools to the field of family economics and shows how analysis of matching patterns and of the incentives thus generated can contribute to our understanding of long-term economic trends, including inequality and the demand for higher education.

Pierre-André Chiappori is the E. Rowan and Barbara Steinschneider Professor of Economics at Columbia University and a Distinguished Fellow at the Becker Friedman Institute for Research in Economics at the University of Chicago. He is the author or coauthor of several books, including Economics of the Family.

JUNE
978-0-691-17173-9  Cloth  $59.95S
288 pages. 36 line illus. 2 tables. 6 x 9.

The Gorman Lectures in Economics
Richard Blundell, Series Editor

ECONOMICS

122  Economics
Open Economy Macroeconomics

MARTÍN URIBE & STEPHANIE SCHMITT-GROHÉ

Combining theoretical models and data in ways unimaginable just a few years ago, open economy macroeconomics has experienced enormous growth over the past several decades. This rigorous and self-contained textbook brings graduate students, scholars, and policymakers to the research frontier and provides the tools and context necessary for new research and policy proposals.

Martín Uribe and Stephanie Schmitt-Grohé factor in the discipline’s latest developments, including major theoretical advances in incorporating financial and nominal frictions into microfounded dynamic models of the open economy, the availability of macro- and microdata for emerging and developed countries through the efforts of national and international statistical agencies, and a revolution in the tools available to simulate and estimate dynamic stochastic models. The authors begin with a canonical general equilibrium model of an open economy and then build levels of complexity through the coverage of important topics such as international business-cycle analysis, financial frictions as drivers and transmitters of business cycles and global crises, sovereign default, pecuniary externalities, involuntary unemployment, optimal macroprudential policy, and the role of nominal rigidities in shaping optimal exchange-rate policy.

Based on courses taught by the authors at several universities, Open Economy Macroeconomics is an essential resource for students, researchers, and practitioners.

- Detailed exploration of international business-cycle analysis
- Coverage of financial frictions as drivers and transmitters of business cycles and global crises
- Extensive investigation of nominal rigidities and their role in shaping optimal exchange-rate policy

Martín Uribe is professor of economics at Columbia University and a research associate at the National Bureau of Economic Research. Stephanie Schmitt-Grohé is professor of economics at Columbia University, a research associate at the National Bureau of Economic Research, and a research fellow at the Center for Economic and Policy Research.

A cutting-edge graduate-level textbook on the macroeconomics of international trade

“Written by leading scholars in the field, this thorough textbook presents comprehensive coverage of modern open economy macroeconomics through the use of rigorous models. It will become a classic of the discipline.”
—Ugo Panizza, Graduate Institute of International and Development Studies in Geneva

“No other single textbook provides the level of detailed mathematics behind open economy macroeconomics like this one.”
—Eddery Lam, Rochester Institute of Technology
Aftershocks: Great Powers and Domestic Reforms in the Twentieth Century

Over the past century, democracy spread around the world in turbulent bursts of change, sweeping across national borders in dramatic cascades of revolution and reform. Aftershocks is the first book to offer a detailed explanation for this wavelike spread and retreat—not only of democracy but also of its twentieth-century rivals, fascism and communism.

Seva Gunitsky argues that waves of regime change are driven by the aftermath of cataclysmic disruptions to the international system. These hegemonic shocks, marked by the sudden rise and fall of great powers, have been essential and often-neglected drivers of domestic transformations. Though rare and fleeting, they not only repeatedly alter the global hierarchy of powerful states but also create unique and powerful opportunities for sweeping national reforms—by triggering military impositions, swiftly changing the incentives of domestic actors, or transforming the basis of political legitimacy itself. As a result, the evolution of modern regimes cannot be fully understood without examining the consequences of clashes between great powers, which repeatedly—and often unsuccessfully—sought to cajole, inspire, and intimidate other states into joining their camps.

Seva Gunitsky is assistant professor of political science at the University of Toronto.

APRIL
978-0-691-17234-7 Paper $29.95
978-0-691-17233-0 Cloth $95.00
280 pages. 23 line illus. 4 tables. 6 x 9.

Princeton Studies in International History and Politics
G. John Ikenberry, Marc Trachtenberg, and William C. Wohlforth, Series Editors

PoliticScieNce | InternaTIOnaL RelaTIOns
Communism’s Shadow
Historical Legacies and Contemporary Political Attitudes

GRIGORE POP-ELECHES & JOSHUA A. TUCKER

It has long been assumed that the historical legacy of Soviet Communism would have an important effect on post-communist states. However, prior research has focused primarily on the institutional legacy of communism. Communism’s Shadow instead turns the focus to the individuals who inhabit post-communist countries, presenting a rigorous assessment of the legacy of communism on political attitudes.

Post-communist citizens hold political, economic, and social opinions that consistently differ from individuals in other countries. Grigore Pop-Eleches and Joshua Tucker introduce two distinct frameworks to explain these differences, the first of which focuses on the effects of living in a post-communist country, and the second on living through communism. Drawing on large-scale research encompassing post-communist states and other countries around the globe, the authors demonstrate that living through communism has a clear, consistent influence on why citizens in post-communist countries are, on average, less supportive of democracy and markets and more supportive of state-provided social welfare. The longer citizens have lived through communism, especially as adults, the greater their support for beliefs associated with communist ideology—the one exception being opinions regarding gender equality.

A thorough and nuanced examination of communist legacies’ lasting influence on public opinion, Communism’s Shadow highlights the ways in which political beliefs can outlast institutional regimes.

Grigore Pop-Eleches is professor of politics and international affairs at the Woodrow Wilson School at Princeton University. He is the author of From Economic Crisis to Reform. Joshua A. Tucker is professor of politics and (by courtesy) Russian and Slavic studies and data science at New York University. He is the author of Regional Economic Voting: Russia, Poland, Hungary, Slovakia, and the Czech Republic, 1990–1999.

“Looking at post-Soviet countries and ordinary members of the general public, Communism’s Shadow investigates the argument that cultural legacies from the past influence current political attitudes and behaviors. This book is the first to systematically test this theory and is undoubtedly a landmark study in the field of comparative politics.”
—James L. Gibson, Washington University in St. Louis

“The first book to measure the impact of communism on the social beliefs of post-communist citizens

“Communism’s Shadow compares the extent to which attitudes toward democracy, the market, the welfare state, and gender equality in post-communist nations differ from opinions found in the rest of the world. Taking on a perennially important topic with considerable sophistication and care, this terrific book will be widely read.”
—Timothy Frye, Columbia University

MAY
978-0-691-17559-1 Paper $29.95S
978-0-691-17558-4 Cloth $99.00S
328 pages. 25 line illus. 25 tables. 6 x 9.
Princeton Studies in Political Behavior
Tali Mendelberg, Series Editor

POLITICAL SCIENCE | COMPARATIVE POLITICS
There is widespread agreement that status or standing in the international system is a critical element in world politics. The desire for status is recognized as a key factor in nuclear proliferation, the rise of China, and other contemporary foreign policy issues, and has long been implicated in foundational theories of international relations and foreign policy. Despite the consensus that status matters, we lack a basic understanding of status dynamics in international politics. The first book to comprehensively examine this subject, *Fighting for Status*, presents a theory of status dissatisfaction that delves into the nature of prestige in international conflicts and specifies why states want status and how they get it.

What actions do status concerns trigger, and what strategies do states use to maximize or salvage their standing? When does status matter, and under what circumstances do concerns over relative position overshadow the myriad other concerns that leaders face? In examining these questions, Jonathan Renshon moves beyond a focus on major powers and shows how different states construct status communities of peer competitors that shift over time as states move up or down, or out, of various groups.

Combining innovative network-based statistical analysis, historical case studies, and a lab experiment that uses a sample of real-world political and military leaders, *Fighting for Status* provides a compelling look at the causes and consequences of status on the global stage.
Westward expansion of the United States is most conventionally remembered for rugged individualism, geographic isolationism, and a fair amount of luck. Yet the establishment of the forty-eight contiguous states was hardly a foregone conclusion, and the federal government played a critical role in its success. This book examines the politics of American expansion, showing how the government’s regulation of population movements on the frontier, both settlement and removal, advanced national aspirations for empire and promoted the formation of a white settler nation.

Building an American Empire details how a government that struggled to exercise plenary power used federal land policy to assert authority over the direction of expansion by engineering the pace and patterns of settlement and to control the movement of populations. At times, the government mobilized populations for compact settlement in strategically important areas of the frontier; at other times, policies were designed to actively restrain settler populations in order to prevent violence, international conflict, and breakaway states. Paul Frymer examines how these settlement patterns helped construct a dominant racial vision for America by incentivizing and directing the movement of white European settlers onto indigenous and diversely populated lands. These efforts were hardly seamless, and Frymer pays close attention to the failures as well, from the lack of further expansion into Latin America to the defeat of the black colonization movement.

Building an American Empire reveals the lasting and profound significance government settlement policies had for the nation, both for establishing America as dominantly white and for restricting broader aspirations for empire in lands that could not be so racially engineered.

Paul Frymer is professor of politics and director of the Program in Law and Public Affairs at Princeton University.
Trading Barriers
Immigration and the Remaking of Globalization

MARGARET E. PETERS

Why have countries increasingly restricted immigration even when they have opened their markets to foreign competition through trade or allowed their firms to move jobs overseas? In Trading Barriers, Margaret Peters argues that the increased ability of firms to produce anywhere in the world combined with growing international competition due to lowered trade barriers has led to greater limits on immigration.

Peters explains that businesses relying on low-skill labor have been the major proponents of greater openness to immigrants. Immigration helps lower costs, making these businesses more competitive at home and abroad. However, increased international competition, due to lower trade barriers and greater economic development in the developing world, has led many businesses in wealthy countries to close or move overseas. Productivity increases have allowed those firms that have chosen to remain behind to do more with fewer workers. Together, these changes in the international economy have sapped the crucial business support necessary for more open immigration policies at home, empowered anti-immigrant groups, and spurred greater controls on migration.

Debunking the commonly held belief that domestic social concerns are the deciding factor in determining immigration policy, Trading Barriers demonstrates the important and influential role played by international trade and capital movements.

Margaret E. Peters is assistant professor of political science at the University of California, Los Angeles.
The Probability Lifesaver
All the Tools You Need to Understand Chance

STEVEN J. MILLER

For students learning probability, its numerous applications, techniques, and methods can seem intimidating and overwhelming. That’s where The Probability Lifesaver steps in. Designed to serve as a complete stand-alone introduction to the subject or as a supplement for a course, this accessible and user-friendly textbook helps students comfortably navigate probability’s terrain and achieve positive results.

The Probability Lifesaver is based on a successful course that Steven Miller has taught at Brown University, Mount Holyoke College, and Williams College. With a relaxed and informal style, Miller presents the math with thorough reviews of prerequisite materials, worked-out problems of varying difficulty, and proofs. He explores a topic first to build intuition, and only after that does he dive into technical details. Coverage of topics is comprehensive, and materials are repeated for reinforcement—both in the textbook and on the book’s website. An appendix goes over proof techniques, and video lectures of the course are available online. Students using this book should have some familiarity with algebra and precalculus.

The Probability Lifesaver not only enables students to survive probability but also to achieve mastery of the subject for use in future courses.

• A helpful introduction to probability or a perfect supplement for a course
• Numerous worked-out examples
• Lectures based on the chapters are available free online
• Intuition of problems emphasized first, then technical proofs given

Steven J. Miller is associate professor of mathematics at Williams College. He is the coauthor of An Invitation to Modern Number Theory (Princeton) and The Mathematics of Encryption: An Elementary Introduction.

The essential lifesaver for students who want to master probability

“I see a tremendous value in this fun, engaging, and informal book. It has a conversational tone, which invites students to engage the material and concepts. It is as if Miller is there, lecturing on the topics, helping students to think things through for themselves.”
—John Imbrie, University of Virginia

“This fun book gives readers the feeling that they are having a live conversation with the author. A wonderful resource for students and teachers alike, The Probability Lifesaver contains clear and detailed explanations, problems with solutions on every topic, and extremely helpful background material.”
—Iddo Ben-Ari, University of Connecticut
Rays, Waves, and Scattering
Topics in Classical Mathematical Physics

JOHN A. ADAM

This one-of-a-kind book presents many of the mathematical concepts, structures, and techniques used in the study of rays, waves, and scattering. panoramic in scope, it includes discussions of how ocean waves are refracted around islands and underwater ridges, how seismic waves are refracted in the earth’s interior, how atmospheric waves are scattered by mountains and ridges, how the scattering of light waves produces the blue of the sky, and meteorological phenomena such as rainbows and coronas.

Rays, Waves, and Scattering is a valuable resource for practitioners, graduate students, and advanced undergraduates in applied mathematics, theoretical physics, and engineering. Bridging the gap between advanced treatments of the subject written for specialists and less mathematical books aimed at beginners, this unique mathematical compendium features problems and exercises throughout that are geared to various levels of sophistication, covering everything from Ptolemy’s theorem to Fresnel integrals, and several informative appendices.

- Provides a panoramic look at wave motion in many different contexts
- Features problems and exercises throughout
- Includes numerous appendices, some on topics not often covered
- An ideal reference book for practitioners

John A. Adam is professor of mathematics at Old Dominion University.

JULY
978-0-691-14837-3 Cloth $85.00S
656 pages. 126 line illus. 6 x 9.
Princeton Series in Applied Mathematics
Ingrid Daubechies, Weinan E, Jan Karel Lenstra, and Endre Süli, Series Editors
Hölder Continuous Euler Flows in Three Dimensions with Compact Support in Time

PHILIP ISETT

Motivated by the theory of turbulence in fluids, the physicist and chemist Lars Onsager conjectured in 1949 that weak solutions to the incompressible Euler equations might fail to conserve energy if their spatial regularity was below 1/3-Hölder. In this book, Philip Isett uses the method of convex integration to achieve the best-known results regarding nonuniqueness of solutions and Onsager’s conjecture. Focusing on the intuition behind the method, the ideas introduced now play a pivotal role in the ongoing study of weak solutions to fluid dynamics equations.

The construction itself—an intricate algorithm with hidden symmetries—mixes together transport equations, algebra, the method of nonstationary phase, underdetermined partial differential equations (PDEs), and specially designed high-frequency waves built using nonlinear phase functions. The powerful “Main Lemma”—used here to construct nonzero solutions with compact support in time and to prove nonuniqueness of solutions to the initial value problem—has been extended to a broad range of applications that are surveyed in the appendix. Appropriate for students and researchers studying nonlinear PDEs, this book aims to be as robust as possible and pinpoints the main difficulties that presently stand in the way of a full solution to Onsager’s conjecture.

Philip Isett is assistant professor of mathematics at the University of Texas, Austin.

APRIL
978-0-691-17483-9 Paper $75.00S
978-0-691-17482-2 Cloth $165.00S
224 pages. 6 x 9.
Annals of Mathematics Studies, 196
Phillip A. Griffiths, John N. Mather, and Elias M. Stein, Series Editors
MATHEMATICS
Noncooperative Game Theory
An Introduction for Engineers and Computer Scientists

JOÃO P. HESPANHA

Noncooperative Game Theory is aimed at students interested in using game theory as a design methodology for solving problems in engineering and computer science. João Hespanha shows that such design challenges can be analyzed through game theoretical perspectives that help to pinpoint each problem’s essence: Who are the players? What are their goals? Will the solution to “the game” solve the original design problem? Using the fundamentals of game theory, Hespanha explores these issues and more.

The use of game theory in technology design is a recent development arising from the intrinsic limitations of classical optimization-based designs. In optimization, one attempts to find values for parameters that minimize suitably defined criteria—such as monetary cost, energy consumption, or heat generated. However, in most engineering applications, there is always some uncertainty as to how the selected parameters will affect the final objective. Through a sequential and easy-to-understand discussion, Hespanha examines how to make sure that the selection leads to acceptable performance, even in the presence of uncertainty—the unforgiving variable that can wreck engineering designs. Hespanha looks at such standard topics as zero-sum, non-zero-sum, and dynamics games and includes a MATLAB guide to coding.

Noncooperative Game Theory offers students a fresh way of approaching engineering and computer science applications.

JULY
978-0-691-17521-8 Cloth $65.00X
214 pages. 8 x 10.

ENGINEERING | COMPUTER SCIENCE | MATHEMATICS
Ecological Forecasting

MICHAEL C. DIETZE

Ecologists are being asked to respond to unprecedented environmental challenges. How can they provide the best available scientific information about what will happen in the future? Ecological Forecasting is the first book to bring together the concepts and tools needed to make ecology a more predictive science.

Ecological Forecasting presents a new way of doing ecology. A closer connection between data and models can help us to project our current understanding of ecological processes into new places and times. This accessible and comprehensive book covers a wealth of topics, including Bayesian calibration and the complexities of real-world data; uncertainty quantification, partitioning, propagation, and analysis; feedbacks from models to measurements; state-space models and data fusion; iterative forecasting and the forecast cycle; and decision support.

- Features case studies that highlight the advances and opportunities in forecasting across a range of ecological subdisciplines, such as epidemiology, fisheries, endangered species, biodiversity, and the carbon cycle
- Presents a probabilistic approach to prediction and iteratively updating forecasts based on new data
- Describes statistical and informatics tools for bringing models and data together, with emphasis on:
  - Quantifying and partitioning uncertainties
  - Dealing with the complexities of real-world data
  - Feedbacks to identifying data needs, improving models, and decision support
- Numerous hands-on activities in R available online

Michael C. Dietze is associate professor in the Department of Earth and Environment at Boston University.

JUNE
978-0-691-16057-3 Cloth $65.00S
304 pages. 1 halftone. 81 line illus. 6 tables. 7 x 10.

ECOLOGY | BIOLOGY

An authoritative and accessible introduction to the concepts and tools needed to make ecology a more predictive science

“As the world enters an era of change in which the past is a limited guide to the future, one great challenge is predicting how ecosystems will behave in situations for which there is no analog. While many scientists have recognized this problem, Dietze has done something about it, and mobilized a set of concepts and tools to draw on. He synthesizes a wide range of material and makes some genuinely difficult material accessible. This book really has no competitors.”
—David Schimel, author of Climate and Ecosystems

“Dietze’s subject is a really important one, and his focus on forecasting and its implementation is novel.”
—Alan Hastings, University of California, Davis
Mate Choice
The Evolution of Sexual Decision Making from Microbes to Humans

GIL G. ROSENTHAL

The popular consensus on mate choice has long been that females select mates likely to pass good genes to offspring. In *Mate Choice*, Gil Rosenthal overturns much of this conventional wisdom. Providing the first synthesis of the topic in more than three decades, and drawing from a wide range of fields, including animal behavior, evolutionary biology, social psychology, neuroscience, and economics, Rosenthal argues that “good genes” play a relatively minor role in shaping mate choice decisions and demonstrates how mate choice is influenced by genetic factors, environmental effects, and social interactions.

Looking at diverse organisms, from protozoans to humans, Rosenthal explores how factors beyond the hunt for good genes combine to produce an endless array of preferences among species and individuals. He explains how mating decisions originate from structural constraints on perception and from nonsexual functions, and how single organisms benefit or lose from their choices. Both the origin of species and their fusion through hybridization are strongly influenced by direct selection on preferences in sexual and nonsexual contexts. Rosenthal broadens the traditional scope of mate choice research to encompass not just animal behavior and behavioral ecology but also neurobiology, the social sciences, and other areas.

Focusing on mate choice mechanisms, rather than the traits they target, *Mate Choice* offers a groundbreaking perspective on the proximate and ultimate forces determining the evolutionary fate of species and populations.

Gil G. Rosenthal is professor of biology and of ecology and evolutionary biology at Texas A&M University. He is codirector of the CICHÁZ field station in central Mexico.

AUGUST

978-0-691-15067-3  Cloth  $55.00S
664 pages. 24 halftones. 99 line illus. 4 tables. 6 x 9.

BIOLOGY | PSYCHOLOGY | SOCIAL SCIENCE
The Standard Model in a Nutshell

DAVE GOLDBERG

For a theory as genuinely elegant as the Standard Model—the current framework describing elementary particles and their forces—it can sometimes appear to students to be little more than a complicated collection of particles and ranked list of interactions. *The Standard Model in a Nutshell* provides a comprehensive and uncommonly accessible introduction to one of the most important subjects in modern physics, revealing why, despite initial appearances, the entire framework really is as elegant as physicists say.

Dave Goldberg uses a “just-in-time” approach to instruction that enables students to gradually develop a deep understanding of the Standard Model even if this is their first exposure to it. He covers everything from relativity, group theory, and relativistic quantum mechanics to the Higgs boson, unification schemes, and physics beyond the Standard Model. The book also looks at new avenues of research that could answer still-unresolved questions and features numerous worked examples, helpful illustrations, and more than 120 exercises.

- Provides an essential introduction to the Standard Model for graduate students and advanced undergraduates across the physical sciences
- Requires no more than an undergraduate-level exposure to quantum mechanics, classical mechanics, and electromagnetism
- Uses a “just-in-time” approach to topics such as group theory, relativity, classical fields, Feynman diagrams, and quantum field theory
- Ideal for a one-semester course or independent study
- Includes a wealth of examples, illustrations, and exercises
- Solutions manual (available only to professors)

Dave Goldberg is professor of physics at Drexel University, where he also serves as associate dean for research and graduate studies at the College of Arts and Sciences.

MARCH
978-0-691-16759-6  Cloth  $85.00
320 pages. 9 halftones. 66 line illus. 12 tables. 7 x 10.

In a Nutshell

PHYSICS
A groundbreaking textbook on twenty-first-century classical physics

“Remarkable for its scope and authority, this text offers a new vision of the ‘theoretical minimum’ of classical physics that all physicists should know, a vision that I hope will revitalize the curricula of many physics departments. On my own shelf it will replace half a dozen dog-eared reference texts.”
—Scott Tremaine, Institute for Advanced Study

“In an era of fragmentation and specialization, Thorne and Blandford have given us an audacious and splendid grand unification of classical physics, using geometry and spacetime as synthesizing principles. Complicated fields as diverse as optics, elasticity, and plasma physics fall to their masterful pedagogy.”
—William H. Press, University of Texas at Austin

This first-year graduate-level text and reference book covers the fundamental concepts and twenty-first-century applications of six major areas of classical physics that every masters- or PhD-level physicist should be exposed to, but often isn’t: statistical physics, optics (waves of all sorts), elastodynamics, fluid mechanics, plasma physics, and special and general relativity and cosmology. Growing out of a full-year course that the eminent researchers Kip Thorne and Roger Blandford taught at Caltech for almost three decades, this book is designed to broaden the training of physicists. Its six main topical sections are also designed so they can be used in separate courses, and the book is an invaluable reference for researchers.

- Presents all the major fields of classical physics except three prerequisites: classical mechanics, electromagnetism, and elementary thermodynamics
- Elucidates the interconnections between diverse fields and explains their shared concepts and tools
- Focuses on fundamental concepts and modern, real-world applications
- Takes applications from fundamental, experimental, and applied physics; astrophysics and cosmology; geophysics, oceanography, and meteorology; biophysics and chemical physics; engineering and optical science and technology; and information science and technology
- Emphasizes the quantum roots of classical physics and how to use quantum techniques to elucidate classical concepts or simplify classical calculations
- Features hundreds of color figures, some five hundred exercises, extensive cross-references, and a detailed index

Kip S. Thorne is the Feynman Professor Emeritus of Theoretical Physics at Caltech. Roger D. Blandford is the Luke Blossom Professor of Physics and the director of the Kavli Institute of Particle Astrophysics and Cosmology at Stanford University.

AUGUST
978-0-691-15902-7 Cloth $125.00S
1528 pages. 349 color illus. 6 halftones. 15 tables. 8 x 10.
From Photon to Neuron
Light, Imaging, Vision

PHILIP NELSON

Students in the physical and life sciences, and in engineering, need to know about the physics and biology of light. Recently, it has become increasingly clear that an understanding of the quantum nature of light is essential, both for the latest imaging technologies and to advance our knowledge of fundamental life processes, such as photosynthesis and human vision. From Photon to Neuron provides undergraduates with an accessible introduction to the physics of light and offers a unified view of a broad range of optical and biological phenomena. Along the way, this richly illustrated textbook builds the necessary background in neuroscience, photochemistry, and other disciplines, bringing students to the latest work in optogenetics, superresolution microscopy, the single-photon response of individual photoreceptor cells, and more.

With its integrated approach, From Photon to Neuron can be used as the basis for interdisciplinary courses in physics, biophysics, sensory neuroscience, bioinstrumentation, bioengineering, or nanotechnology. The goal is always for students to gain the fluency needed to derive every result for themselves, so the book includes a wealth of exercises, including many that guide students through computer-based solutions. Supplementary online materials include real experimental data to use with the exercises.

- Requires only first-year undergraduate physics and the corresponding math
- Advanced chapters also make the book suitable for graduate courses
- An electronic solutions manual is available to adopters
- Strong overlap with the goals of the new MCAT2015

Philip Nelson is professor of physics at the University of Pennsylvania. He is the author of Biological Physics and Physical Models of Living Systems and coauthor of A Student’s Guide to Python for Physical Modeling (Princeton). Among other honors, he has received the Biophysical Society’s Emily M. Gray Award for educational excellence.

“Nelson has taken a subject usually treated in depth only at the graduate level and developed an understandable and coherent treatment appropriate for undergraduates. He provides a unified framework with which to discuss the disparate ways biological systems interact with light and the variety of ways researchers use light as a biological probe. There is no serious competitor for this book.”
—Alex J. Levine, University of California, Los Angeles

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An Introduction to X-Ray Physics, Optics, and Applications

CAROLYN MACDONALD

In this book, Carolyn MacDonald provides a comprehensive introduction to the physics of a wide range of x-ray applications, optics, and analysis tools. Theory is applied to practical considerations of optics and applications ranging from astronomy to medical imaging and materials analysis.

Emphasizing common physical concepts that underpin diverse phenomena and applications of x-ray physics, the book opens with a look at nuclear medicine, motivating further investigations into scattering, detection, and noise statistics. The second section explores topics in x-ray generation, including characteristic emission, x-ray fluorescence analysis, bremsstrahlung emission, and synchrotron and laser sources. The third section details the main forms of interaction, including the physics of photoelectric absorption, coherent and Compton scattering, diffraction, and refractive, reflective, and diffractive optics. Applications in this section include x-ray spectroscopy, crystallography, and dose and contrast in radiography. A bibliography is included at the end of every chapter, and solutions to chapter problems are provided in the appendix.

Based on a course for advanced undergraduates and graduate students in physics and related sciences and also intended for researchers, An Introduction to X-Ray Physics, Optics, and Applications offers a thorough survey of the physics of x-ray generation and interaction with materials.

Carolyn MacDonald is professor and former chair of physics at the University at Albany and the director of the UAlbany Center for X-ray Optics.

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PAUL CHARBONNEAU

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Paul Charbonneau is professor of physics at the University of Montreal.

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Can the Laws of Physics Be Unified?

PAUL LANGACKER

The standard model of particle physics describes our current understanding of nature’s fundamental particles and their interactions, yet gaps remain. For example, it does not include a quantum theory of gravity, nor does it explain the existence of dark matter. Once complete, however, the standard model could provide a unified description of the very building blocks of the universe. Researchers have been chasing this dream for decades, and many wonder whether such a dream can ever be made a reality.

Can the Laws of Physics Be Unified? is a short introduction to this exciting frontier of physics. The book is accessibly written for students and researchers across the sciences, and for scientifically minded general readers. Paul Langacker begins with an overview of the key breakthroughs that have shaped the standard model, and then describes the fundamental particles, their interactions, and their role in cosmology. He goes on to explain field theory, internal symmetries, Yang-Mills theories, strong and electroweak interactions, the Higgs boson discovery, and neutrino physics. Langacker then looks at the questions that are still unanswered: What is the nature of the mysterious dark matter and dark energy that make up roughly 95 percent of the universe? Why is there more matter than antimatter? How can we reconcile quantum mechanics and general relativity?

Can the Laws of Physics Be Unified? describes the promising theoretical ideas and new experiments that could provide answers and weighs our prospects for establishing a truly unified theory of the smallest constituents of nature and their interactions.

Paul Langacker is senior scientist at Princeton University, visitor at the Institute for Advanced Study in Princeton, and professor emeritus of physics at the University of Pennsylvania. He is the author of The Standard Model and Beyond.

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