The MIT Press

Frankfurt Book Fair
2020

Rights Guide

FEATURED TITLES:

THE CURIE SOCIETY
Heather Einhorn and Adam Staffaroni 168 pages – full color **SPRING 2021**

A Young Adult original graphic novel (OGN) about a secret society of young women chosen for their unique super powers of scientific reasoning.

The fictional story of an international secret society begun by Marie Curie that enlists young would-be female scientists to use their inherent STEM skills in covert operations to protect the world.

The OGN was created by the creative team of Heather Einhorn and Adam Staffaroni of Einhorn's Epic Productions (EEP).

The basis for a major television series currently in production!

The first action-adventure graphic novel from MIT Press. The Curie Society follows a team of college students who are inducted into the Curie Society, an elite secret society founded to support the most brilliant female scientific minds in the world. With smarts, toughness, and cutting-edge tech, these women protect the mission of the Society and the cause of scientific knowledge across the globe. The intent of the book is to encourage young women's interest in STEM fields through a relatable action/adventure story. This first installment of what is intended to be a series is focused on Edmonds University physics professor and CS leader Dr. Jolene Burkhart, her new CS recruits and freshmen Simone, Taj, and Maya, and their group leader Emma on a mission to prevent a rogue underground group (led by former CS leader Xiomena Olvera) from selling stolen CS-created de-extinction biotech IP to a corrupt VC firm.

THE MIT PRESS: https://mitpress.mit.edu/

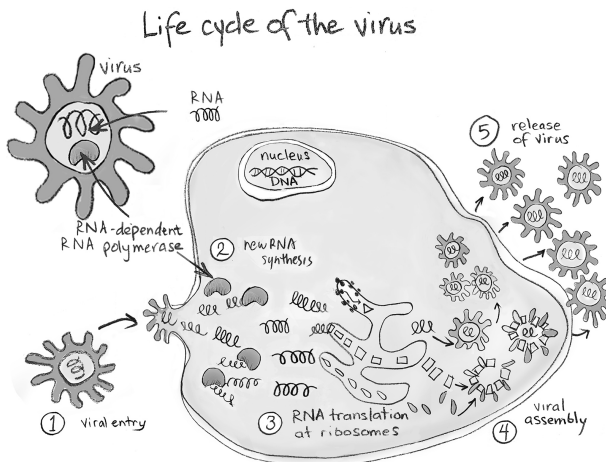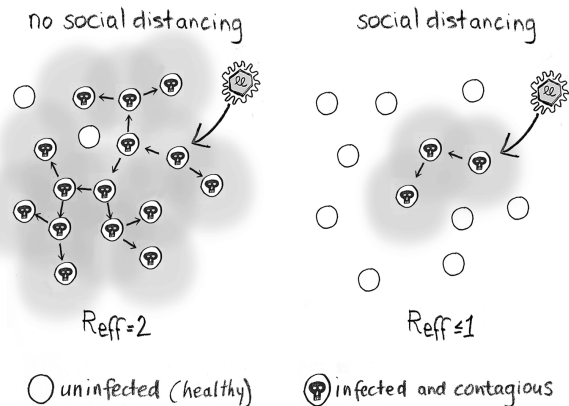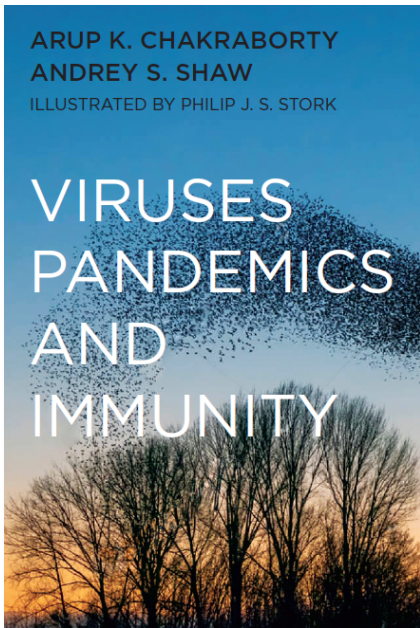## VIRUSES, PANDEMICS, AND IMMUNITY

Arup K. Chakraborty and Andrey S. Shaw 208 pages; 38 b&w illus. FEBRUARY 2021

Throughout history, humans have contended with pandemics. History is replete with references to plagues, pestilence, and contagion, but the devastation wrought by pandemics had been largely forgotten by the twenty-first century. Now, the enormous human and economic toll of the rapidly spreading COVID-19 disease offers a vivid reminder that infectious disease pandemics are one of the greatest existential threats to humanity. This book provides an accessible explanation of how viruses emerge to cause pandemics, how our immune system combats them, and how diagnostic tests, vaccines, and antiviral therapies work—concepts that provide the foundation for our public health policies.

The authors, both experts in immunology, interweave explanations of scientific principles and ongoing efforts to combat COVID-19 with stories of the people behind the science. They recount the eradication of smallpox—the greatest accomplishment of vaccines and public health; discuss microbial pathogens; and describe what we know about modern pandemics, including how they spread, how they can be contained, and how they can be treated. They do not offer prescriptions for what to do, but equip readers to be informed participants in debates about how to create a more pandemic-resilient world. We do not have to repeat the mistakes made with COVID-19.

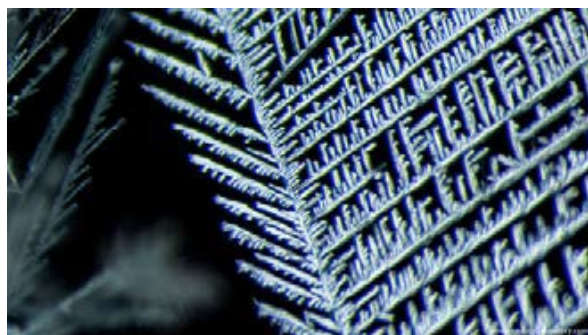# THE BEAUTY OF CHEMISTRY: Art, Wonder, and Science

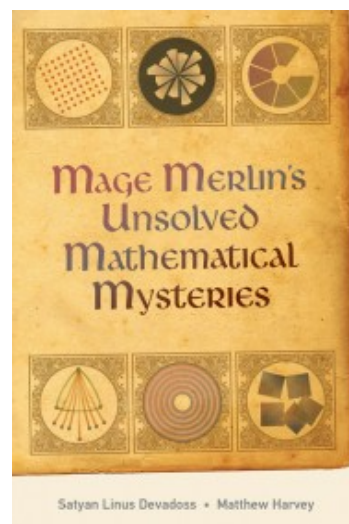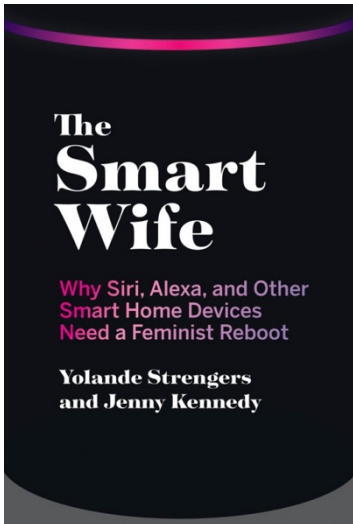Philip Ball, Yan Liang, and Wenting Zhu   400 pages; 354 color illus.   FEBRUARY 2021

This glorious book combines evocative and illuminating text from award-winning science writer Philip Ball to highlight the imagery from the landmark online exhibition *Envisioning Chemistry* by Yan Liang, Wenting Zhu and the team behind the educational brand *Beauty of Science*. Combining a visual spectacular and Ball's words which bring chemistry alive for the reader, the book will challenge the common perception of chemistry as a mundane and messy science, showing instead it is filled with wonder. Through words and images the reader will discover how chemistry underpins the formation of snowflakes, the patterns of animal markings, the science of champagne, the colors of flowers, and much more. *The Beauty of Chemistry* is a book that will appeal equally to the practicing chemist (or scientist of any persuasion) and the curious lay reader.

Philip Ball's writing has been a finalist for the Samuel Johnson Prize for nonfiction and the National Book Critics Circle award. He has won the Aventis Science Books award (for *Critical Mass*), the American Chemical Society's James T. Grady-James H. Stack Award for Interpreting Chemistry for the Public, the British Society for the History of Science's Dingle Prize, and the Lagrange Prize.

Envisioning Chemistry was done in collaboration with the Chinese Chemical Society. Blending chemistry and art, the exhibition reveals the beauty of chemistry by using the techniques microphotography, time-lapse photography, and infrared thermal imaging to show chemical processes as they happen. The movies have been used in a variety of contexts, including displays and presentations at the opening ceremony of the International Year of the Periodic Table at UNESCO in January 2019.

![The Smart Wife book cover]
![Democratizing Our Data book cover]
![Mage Merlin's Unsolved Mathematical Mysteries book cover]

THE SMART WIFE: Why Siri, Alexa, and Other Smart Home Devices Need a Feminist Reboot

Yolande Strengers & Jenny Kennedy   300 pages   SEPTEMBER 2020

The Smart Wife examines the emergence of digital home devices— and the "wifework" they engage in. *She* might go by the name Siri, or Alexa, or inhabit Google Home. *She* can keep us company, order groceries, vacuum the floor, turn out the lights. A Japanese digital voice assistant—a virtual anime hologram named Hikari Azuma—sends her master messages during the day; an American sexbot named Roxxxy takes on other kinds of household chores. The authors show that the principal prototype for these virtual helpers—designed by the male-dominated tech industry—is the pre-feminist 1950s housewife: white, middle class, heteronormative, and nurturing. In other words, AI technology has taken us backwards rather than forwards when it comes to gender equity. Strengers and Kennedy offer a Smart Wife "manifesta," proposing a reboot that would promote a revaluing of femininity in society in all her glorious diversity.

DEMOCRATIZING OUR DATA: A Manifesto

Julia Lane   92 pages   AUGUST 2020

Public data are foundational to our democratic system. People need consistently high-quality information from trustworthy sources. In the new economy, wealth is generated by access to data; government's job is to democratize the data playing field. Yet data produced by the American government are getting worse and costing more. In *Democratizing Our Data*, Julia Lane argues that good data are essential for democracy. Her book is a wake-up call to America to fix its broken public data system.
Lane argues that we must rethink ways to democratize data; there are successful models to follow and new legislation that can help effect change. The private sector's data revolution—which creates new types of data and new measurements to build machine learning and artificial intelligence algorithms—can be mirrored by a public sector data revolution characterized by attention to counting all who should be counted, measuring what should be measured, and protecting privacy and confidentiality. Just as Google, Amazon, Microsoft, Apple, and Facebook have led the world in the use of data for profit, the United States can show the world how to produce data for the public good.
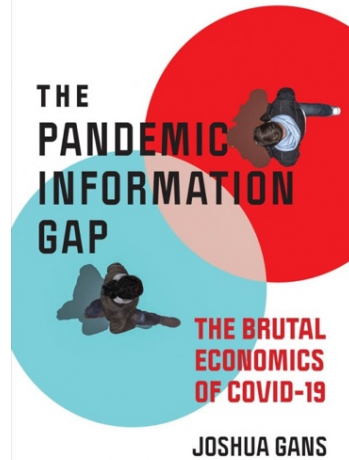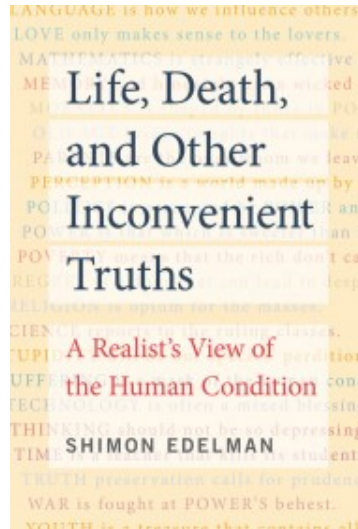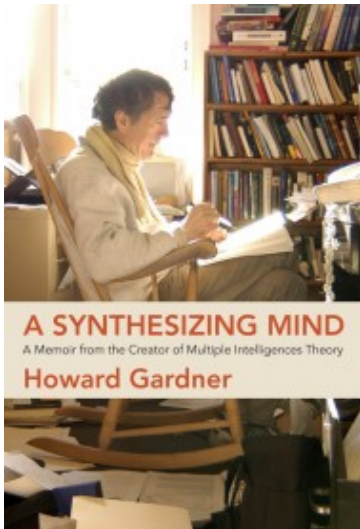
MAGE MERLIN'S UNSOLVED MATHEMATICAL MYSTERIES

Satyan Linus Devadoss and Matthew Harvey   120 pages, 38 color illus.   JULY 2020

Most people think of mathematics as a set of useful tools designed to answer analytical questions, beginning with simple arithmetic and ending with advanced calculus. But, as *Mage Merlin's Unsolved Mathematical Mysteries* shows, mathematics is filled with intriguing mysteries that take us to the edge of the unknown. This richly illustrated, story-driven volume presents sixteen of today's greatest unsolved mathematical puzzles, all understandable by anyone with elementary math skills. These intriguing mysteries are presented to readers as puzzles that have time-traveled from Camelot, preserved in the notebook of Merlin, the wise magician in King Arthur's court. Each mystery is a sword awaiting removal from its stone, capturing the beauty and power of mathematics.

A SYNTHESIZING MIND: A Memoir from the Creator of Multiple Intelligences Theory

Howard Gardner   304 pages, 30 b&w illus.   SEPTEMBER 2020

The eminent Harvard professor, author of the groundbreaking bestseller *Frames of Mind*, and creator of the *multiple intelligences* theory reflects on his intellectual growth, his work, and the human mind—including his own.

Gardner's theory of multiple intelligences was a rare game changer - an academic theory with real world implications that debunked the primacy of the IQ test and inspired new approaches to psychology, education, parenting, and even business. In this memoir, he reflects on his intellectual development, tracing his evolution from bookish child to eager college student to disengaged graduate student to Harvard professor. Along the way, he discusses mentors (Erik Erikson; Jerome Bruner), collaborators (Mihaly Csikszentmihalyi, William Damon), even comedians (Groucho Marx). An engaging, wide-ranging intellectual reflection in the best memoir tradition.

LIFE, DEATH, AND OTHER INCONVENIENT TRUTHS: A Realist's View of the Human Condition

Shimon Edelman   224 pages   OCTOBER 2020

A guide to human nature and human experience—a reference book for making sense of life. In thirty-eight short, interconnected essays, Shimon Edelman considers the parameters of the human condition, addressing them in alphabetical order, from action (good except when it's not) to love (only makes sense to the lovers) to thinking (should not be so depressing) to youth (a treasure). In a style that is by turns personal and philosophical, at once informative and entertaining, Edelman offers a series of illuminating takes on the most important aspects of living in the world.

Edelman was raised in the USSR and Israel. He is Professor of Psychology at Cornell University and the author of Computing the Mind, The Happiness of Pursuit, and other books. Greater Good called The Happiness of Pursuit: "An owner's manual for the mind ... and an entertaining one."

THE PANDEMIC INFORMATION GAP: The Brutal Economics of COVID-19
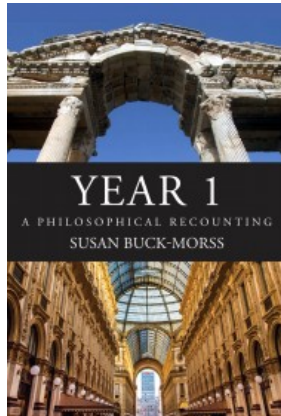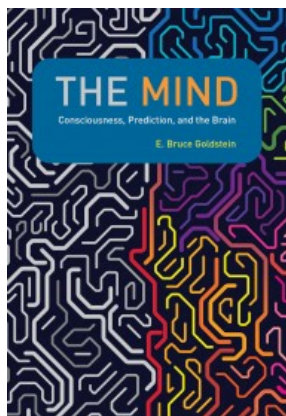
Joshua Gans   216 pages; 11 illus.   OCTOBER 2020

COVID-19 is caused by a virus. The COVID-19 pandemic is caused by a lack of good information. A pandemic is essentially an information problem: this is the enlightening and provocative idea at the heart of this book. If we solve the information problem, argues economist Joshua Gans, we can defeat the virus. For example, when we don't know who is infected, we have to act as if everyone is infected. If we actively manage the information problem—if we know who is infected and with whom they had contact—we can suppress the virus or buy time for vaccine development.

Emphasizing that pandemic-induced economic crises are different from past recessions, Gans maps the phases of the pandemic economy and the information needed at each stage to enable recovery. He argues that we should insulate businesses from failure and workers from job loss, and describes economic policy approaches that would help achieve this. He discusses pandemic communication strategies, privacy and public health information, and methods for handling potential vaccine shortages. To innovate our way out of this crisis, Gans argues, we must think creatively and take the long view. Pandemics may be unpredictable, but they can be planned for, and this book provides a roadmap to do so.

THE MIND: Consciousness, Prediction, and the Brain

E. Bruce Goldstein   264 pages; 34 illus.   SEPTEMBER 2020

Offering an accessible, engaging account of the mind and its *connection* to the brain, Goldstein takes as his starting point two central questions: What is the mind? What is consciousness? Drawing on the latest research and explaining its relevance, he then leads readers through topics that range from conceptions of the mind in popular culture to the wiring system of the brain. Throughout, Goldstein reveals the mind as a remarkable complex communication engine, less the simple firing of neurons in one specialized area and more connections that travel across what Goldstein calls the "highways of the mind."

THE ARCHITECTURE OF BATHING: Body, Landscape, Art

Christie Pearson   300 pages; 115 color illus., 151 b & w illus.   SEPTEMBER 2020

A celebration of communal bathing—swimming pools, saunas, beaches, ritual baths, sweat lodges, and more—viewed through the lens of architecture and landscape. Pearson offers a unique examination of communal bathing and its history from the perspective of architecture and landscape. Each chapter is structured around an architectural typology and explores an accompanying theme—for example, tub, sensuality; river, flow; waterfall, rejuvenation; and banya, immersion. Offering examples, introducing relevant theory, and recounting personal experiences, Pearson effortlessly combines a practitioner's zest with astonishing erudition. Engagingly written and richly illustrated, *The Architecture of Bathing* offers a celebration of spaces in which public and private, sacred and profane, ritual and habitual, pure and impure, nature and culture commingle.

YEAR 1

Susan Buck-Morss   456 pages; 63 illus.   DECEMBER 2020

Susan Buck-Morss's approach to the philosophy of history transcends disciplines to create a space at the intersections of religion, history, and law. We have passed through modernity and its failures (the dream of "progress," Hegelian and otherwise, is over) and postmodernity, and have finally reached a dead-end. With *Year 1*, Buck-Morss is attempting to establish a "pre-modernity" and a reformulation of "East" and "West" by putting aside the standard central figures (Tacitus, Seneca, and Saint Paul) in favor of others that have gotten short shrift (Flavius Josephus, Philo of Alexandria, and John of Patmos). In doing so, she establishes alternative traditions as the paths not taken and now needed, and establishes a more "communist" inheritance that repositions antiquity as something that intersects Christian, Jewish, secular, and Muslin knowledge as one body rather than separate slices of a worldly pie.
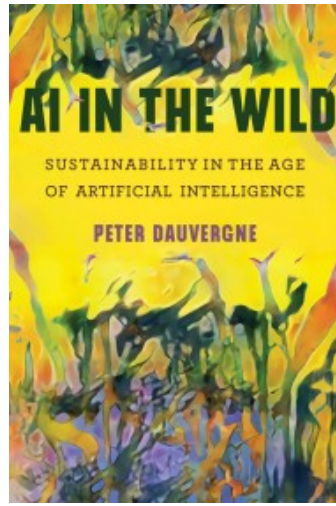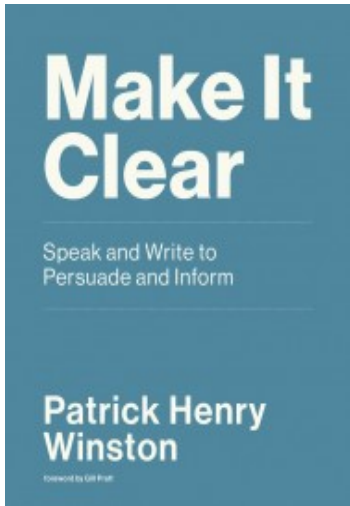
THE PHOTOROMANCE: A Feminist Reading of Popular Culture

Paola Bonifazio   256 pages; 20 color illus. 21 b&w illus.   SEPTEMBER 2020

Born in Italy and successfully exported to the rest of the world, photoromances had a readership of millions in the postwar years. By the early 1960s, more than ten million Italians read a photoromance each week. Despite its popularity, the photoromance—a form of graphic storytelling that uses photographs instead of drawings—was widely scorned as a medium, and its largely female audience derided as naive, pathetic, and uneducated. In this provocative book, Paola Bonifazio offers another perspective, making a case for the relevance of the photoromance for both feminism and media culture. She argues that the photoromance pioneered storytelling across platforms, elevated characters and artists into brands, and nurtured a devoted fan base. Moreover, Bonifazio shows that female readers—condescended to by intellectuals, journalists, and politicians of both the left and the right—powered the Italian photoromance industry's success. Bonifazio examines the "convergence culture" of Italian media as photoromance magazines dispersed their content across multiple formats, narrative conventions, editorial and business strategies, and platforms. The plots of photoromances often resembled the storylines of romantic films, and film stars themselves often appeared in photoromances. Bonifazio discusses the media habits of photoromance readers; the use of photoromances to promote political, religious, and social agendas, including a campaign for "birth control in comics"; and long-term fandom.

MAKE IT CLEAR: Speak and Write to Persuade and Inform

Patrick Henry Winston   352 pages 145 illustrations, 45 b&w   OCTOBER 2020

Put simply, *Make It Clear* explains how to communicate—how to speak and write to get your ideas across. Written by the esteemed late MIT professor who taught his students these techniques for more than forty years, the book starts with the basics—finding your voice, organizing your ideas, making sure what you say is remembered, and receiving critiques. Winston covers such specifics as writing and rewriting, preparing slides, and even choosing a type family. He explains why you should start with an empowerment promise and conclude by noting you delivered on that promise. It describes how a well-crafted, explicitly identified slogan, symbol, salient idea, surprise, and story combine to make you and your work memorable. Effective communication can be life-changing— making use of just one principle in this book can get you the job, make the sale, convince your boss, inspire a student, or even start a revolution. Learning how to speak and write well will empower you and make you smarter.

AI IN THE WILD: Sustainability in the Age of Artificial Intelligence

Peter Dauvergne   272 pages   SEPTEMBER 2020

Drones with night vision are tracking elephant and rhino poachers in African wildlife parks and sanctuaries; smart submersibles are saving coral from carnivorous starfish on Australia's Great Barrier Reef; recycled cell phones alert Brazilian forest rangers to the sound of illegal logging. The tools of artificial intelligence are being increasingly deployed in the battle for global sustainability. And yet, warns Peter Dauvergne, we should be cautious in declaring AI the planet's savior. In *AI in the Wild*, Dauvergne avoids the AI industry-powered hype and offers a critical view, exploring both the potential benefits and risks of using artificial intelligence to advance global sustainability.

Dauvergne finds that corporations and states often use AI in ways that are antithetical to sustainability. The competition to profit from AI is entrenching technocratic management, revving up resource extraction, and turbocharging consumption, as consumers buy new smart devices (and discard their old, less-smart ones). Smart technology is helping farmers grow crops more efficiently, but also empowering the agrifood industry. Moreover, states are weaponizing AI to control citizens, suppress dissent, and aim cyberattacks at rival states. Dauvergne argues for precaution and humility as guiding principles in the deployment of AI.
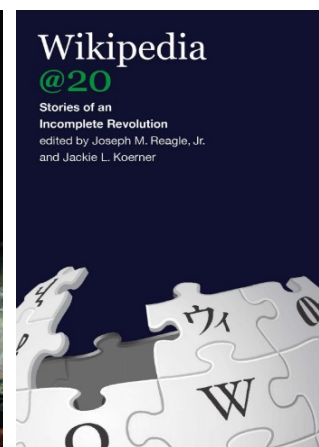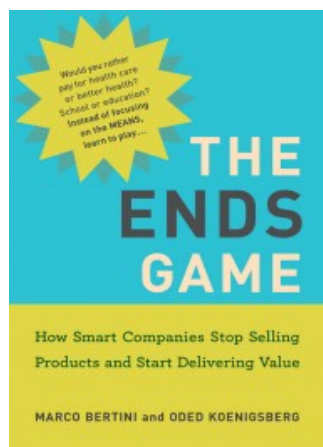
PLAY LIKE A FEMINIST

Shira Chess   184 pages; 3 illus.   AUGUST 2020

"You play like a girl": it's meant to be an insult, accusing a player of subpar, un-fun playing. If you're a girl, and you grow up, do you "play like a woman"—whatever that means? In this provocative and enlightening book, Shira Chess urges us to play like feminists. Furthermore, she urges us to play video games like feminists. Playing like a feminist is empowering and disruptive; it exceeds the boundaries of gender yet still advocates for gender equality. Playing like a feminist offers a new way to think about how humans play —and also a new way to think about how feminists do their feministing. Chess argues that feminism needs video games as much as video games need feminism.

Video games, Chess tells us, are primed for change. Roughly half of all players identify as female, and Gamergate galvanized many of gaming's disenfranchised voices. Games themselves are in need of a creative platform-expanding, metaphysical explosion; feminism can make games better. Chess reflects on the importance of play, and playful protest, and how feminist video games can help us rethink the ways that we tell stories. She proposes "Women's Gaming Circles"—which would function like book clubs for gaming—as a way for feminists to take back play. (An appendix offers a blueprint for organizing a gaming circle.) Play and games can be powerful. Chess's goal is for all of us—regardless of gender orientation, ethnicity, ability, social class, or stance toward feminism—to spend more time playing as a tool of radical disruption.

THE ENDS GAME: How Smart Companies Stop Selling Products and Start Delivering Value

Macro Bertini and Oded Koenigsberg   168 pages   AUGUST 2020

Would you rather pay for healthcare or for better health? For school or education? For groceries or nutrition? A car or transportation? A theater performance or entertainment? Bertini and Koenigsberg describe how some firms are rewriting the rules of commerce: instead of selling the "means" (their products and services), they adopt innovative revenue models to pursue "ends" (actual outcomes). They show that paying by the pill, semester, food item, vehicle, or show does not necessarily reflect the value that customers actually derive from their purchases. Revenue models anchored on the ownership of products, they argue, are patently inferior.

A NEW HISTORY OF THE FUTURE IN 100 OBJECTS: A Fiction

Adrian Hon   168 pages   AUGUST 2020

A riveting imagined history looking back on the twenty-first century through one hundred of its artifacts, from silent messaging systems to artificial worlds on asteroids. In the year 2082, a curator looks back at the twenty-first century, offering a history of the era through a series of objects and artifacts. He reminisces about the power of connectivity, which was reinforced by such technologies as silent messaging— wearable computers that relay subvocal communication; recalls the Fourth Great Awakening, when a regimen of pills could make someone virtuous; and notes disapprovingly the use of locked interrogation, which delivers "enhanced interrogation" simulations via virtual reality. The unnamed curator quotes from a self-help guide to making friends with "posthumans," describes the establishment of artificial worlds on asteroids, and recounts pro-democracy movements in epistocratic states. In *A New History of the Future in 100 Objects*, Adrian Hon constructs a possible future by imagining the things it might leave in its wake.

ENTANGLEMENTS: Tomorrow's Lovers, Families, and Friends

edited by Sheila Williams   240 pages 11 b&w photos   AUGUST 2020

In a future world dominated by the technological, people will still be entangled iann relationships—in romances, friendships, and families. This volume in MIT's Twelve Tomorrows science fiction series considers the effects that scientific and technological discoveries will have on the emotional bonds that hold us together. The strange new worlds in these stories feature AI family therapy, floating fungitecture, and a futuristic love potion. A co-op of mothers attempts to raise a child together, lovers try to resolve their differences by employing a therapeutic sexbot, and a robot helps a woman dealing with Parkinson's disease. Contributions include Xia Jia's novelette set in a Buddhist monastery, translated by the Hugo Award-winning writer Ken Liu; a story by Nancy Kress, winner of six Hugos and two Nebulas; and a profile of Kress by Lisa Yaszek, Professor of Science Fiction Studies at Georgia Tech. Stunning artwork by Tatiana Plakhova
—"infographic abstracts" of mixed media software—accompany the texts.

WIKIPEDIA @ 20:Stories of an Incomplete Revolution

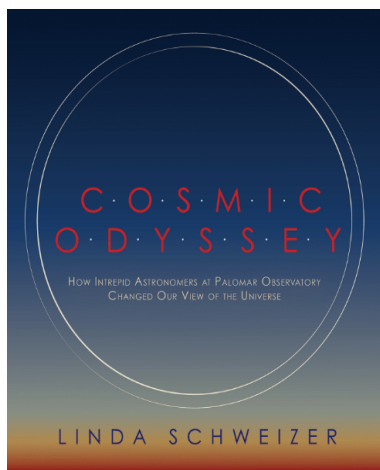edited by Joseph M. Reagle, Jr. and Jackie L. Koerner   360 pages   OCTOBER 2020

Wikipedia's first twenty years: how what began as an experiment in open source collaboration became the world's most popular reference work. Scholars, activists, and volunteers reflect and reveal connections across disciplines and borders, languages and data, the professional and personal. The contributors consider Wikipedia's history, the richness of the connections that underpin it, and its founding vision. Their essays look at, among other things, the shift from bewilderment to respect in press coverage of Wikipedia; Wikipedia as "the most important laboratory for social scientific and computing research in history"; and the acknowledgment that "free access" includes not just access to the material but freedom to contribute—that the summation of all human knowledge is biased by who documents it.

AMBIENT PLAY

Larissa Hjorth and Ingrid Richardson   216 pages; 20 b&w photos   AUGUST 2020

We often play games on our mobile devices when we have some time to kill—waiting in line, pausing between tasks, stuck on a bus. We play in solitude or in company, alone in a bedroom or with others in the family room. In *Ambient Play*, Larissa Hjorth and Ingrid Richardson examine how mobile gameplay fits into our day-to-day lives. They show that as mobile games spread across different genres, platforms, practices, and contexts, they become an important way of experiencing and navigating a digitally saturated world. Mobile games become conduits for what the authors call *ambient play*, more than a "casual" distraction but rather a complex cultural practice embedded into our contemporary ways of being, knowing, and communicating.

COSMIC ODYSSEY: How Intrepid Astronomers at Palomar Observatory Changed our View of the Universe

Linda Schweizer   312 pages; 100+ illus.   NOVEMBER 2020

From newborn galaxies to icy worlds and blazing quasars, a behind-the-scenes story of how Palomar Observatory astronomers unveiled our complex universe. Ever since 1936, pioneering scientists at CalTech's Palomar Observatory in Southern California have pushed against the boundaries of the known universe, making a series of dazzling discoveries that changed our view of the cosmos. Based on more than one hundred interviews and enhanced by research in scientific journals, her account paints a fascinating picture of how discrete insights acquired over decades by researchers in a global community cascade, collide, and finally coalesce into the discoveries we come to accept as facts.

THE INFINITE PLAYGROUND

Bernard De Koven   200 pages   AUGUST 2020

De Koven (1941–2018) was a pioneering game designer long before the field of game studies existed. For De Koven, games could not be reduced to artifacts and rules; they were about a sense of transcendent fun. This book, his last, is about the imagination: the imagination as a playground, a possibility space, and a gateway to wonder. De Koven guides the readers through a series of observations and techniques, beginning with the fundamentals of play, and proceeding through both the private and shared imagination. Along the way, he reminisces about playing ping-pong with basketball great Bill Russell; offers instructions for a new game called *Reception Line*; and introduces blathering games—*Blather*, *Group Blather*, *Singing Blather*—that allow the player's consciousness to meander. De Koven extends a play-centered invitation that "the things we imagine can *become* the world."
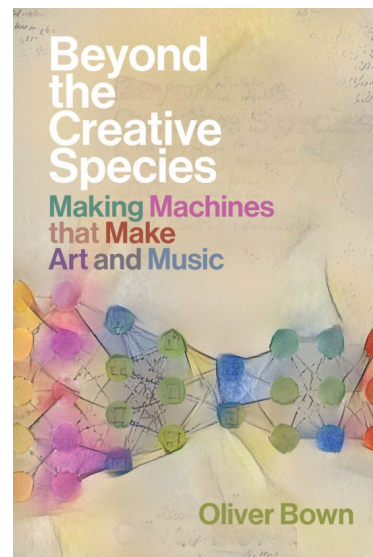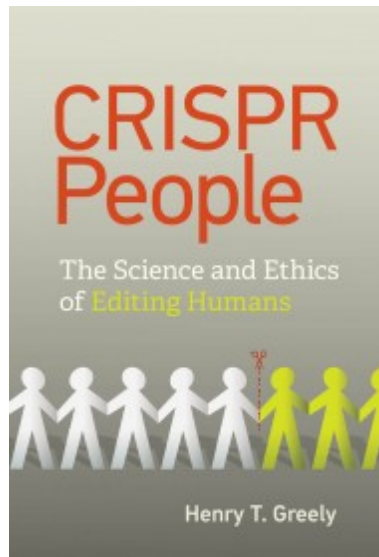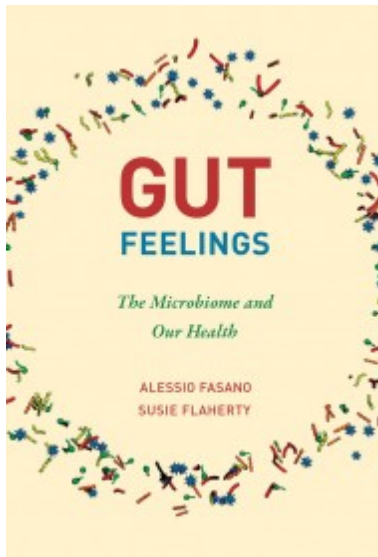
TOMORROW'S ECONOMY: A Guide to Creating Healthy Green Growth

Per Espen Stoknes   384 pages; 32 b&w illus.   FEBRUARY 2021

In *Tomorrow's Economy*, Per Espen Stoknes reframes the hot-button issue of economic growth. Going beyond the usual pro-growth versus anti-growth debate, Stoknes calls for *healthy* growth. Stoknes explains that healthy growth reimagines value creation as resource smart and inclusive. Healthy growth is measurably profitable, more resource-productive, and more redistributive by design each year. Stoknes distinguishes between healthy and unhealthy kinds of economic growth at personal, corporate, city, national, and global levels, mapping a three-part synergy that benefits buyers, sellers, and society. He outlines actions we can take now—including the creation of a new legal entity, the benefit corporation—and lays out six steps companies can take toward healthy growth. He also describes how we can vote with our wallets to prioritize sustainability. The engaged citizen, he tells us, is central to the shift toward healing growth.

GUT FEELINGS: The Microbiome and Our Health

Alessio Fasano and Susie Flaherty   400 pages; 9 illus.   MARCH 2021

Since van Leeuwenhoek invented the microscope and viewed his "wretched beasties" in a drop of rain water more than 350 years ago, the study of microorganisms has engendered more than one scientific revolution. But our recent ability to map the human genome, followed by the human microbiome project, has ushered in a technological revolution that promises to revolutionize medicine. Advances in understanding the microbiome and its role in human health dovetails with the development of personalized or "precision" medicine to create treatments and prevention programs targeted to the molecular imprint of an individual. By simultaneously expanding our perspective to encompass large data sets and multiple factors in human health, and narrowing our focus to identify the individual communities in the human microbiome, we will enlarge—and reinvent—our ability to combat disease and maintain health.

CRISPR PEOPLE: The Science and Ethics of Editing Humans

Henry T. Greely   344 pages   .   JANUARY 2021

In 2018, Chinese scientist He Jiankui shocked the scientific world and sparked both headlines and controversy by announcing that he had used the DNA editing tool CRISPR to change the DNA of human embryos for two twin girls—who had already been born as the world's first "CRISPR Babies". The He Jiankui affair puts the many concerns about human germline genome editing – and many other forms of assisted reproduction as well as other human interventions we humans make in ourselves – into a concrete setting. Greely, a lawyer by training, unpacks the details of the Jiankui case and examines the broader laws, principles, and guidelines. All settings are different, but they provide the opportunity to see consequences and concerns evoked in the real world that might be missed in the solitude of a scholar's study or even in the busy hum of an engaged classroom. A fascinating, unnerving, and mysterious story.

BEYOND THE CREATIVE SPECIES: Making Machines That Make Art and Music

Oliver Bown   424 pages; 17 b&w illus.   FEBRUARY 2021

As algorithms get smarter, what role will computers play in the creation of music, art and other cultural artifacts? Will they be able to create such things from the ground up, and will such creations be meaningful? In *Beyond the Creative Species*, Oliver Bown offers a multidisciplinary examination of computational creativity, analyzing the impact of advanced generative technologies on art and music. Drawing on a wide range of disciplines, including artificial intelligence and machine learning, design, social theory, the psychology of creativity, and creative practice research, Bown argues that to understand computational creativity, we must not only consider what computationally creative algorithms actually do, but also examine creative artistic activity itself.

MAKE SHIFT: Dispatches from the Post-Pandemic Future

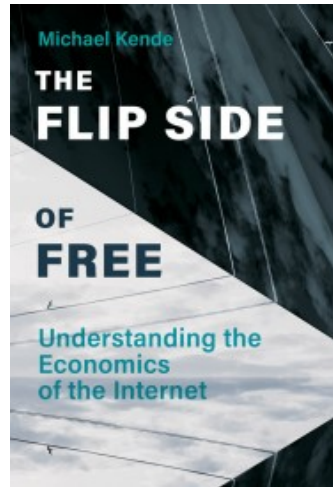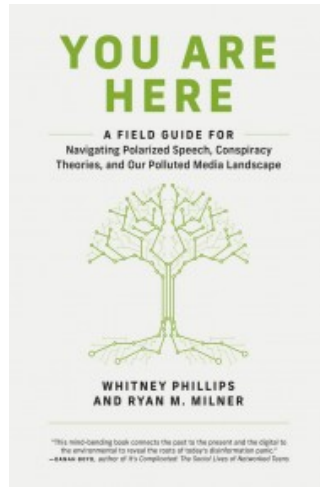edited by Gideon Lichfield   176 pages   APRIL 2021

This new volume in the Twelve Tomorrows series of science fiction anthologies looks at how science and technology—existing or speculative—might help us create a more equitable and hopeful world after the coronavirus pandemic. The original stories presented here, from a diverse collection of authors, offer no miracles or simple utopias, but visions of ingenuity, grit, and incremental improvement. In the tradition of inspirational science fiction that goes back to Isaac Asimov and Arthur C. Clarke, these writers remind us that we can choose our future, and show us how we might build it.

Stories by Madeline Ashby, Indrapramit Das, Cory Doctorow, Adrian Hon, Rich Larson, Ken Liu, Malka Older, Hannu Rajaniemi, Karl Schroeder, D. A. Xiaolin Spires.

THE NEXT 500 YEARS: Engineering Life to Reach New Worlds

Christopher E. Mason   312 pages   FEBRUARY 2021

Do we have the ability to colonize space? Do we have a moral obligation to continue our species, on this planet or the next? These are the existential questions that geneticist Chris Mason addresses in his scientifically-sound look 500 years into the future. Mason argues we will need all the technological, physical, pharmacological, and medical protective measures. But we can also, for the first time ever, deploy genetic measures of defense as well. To save life, we will need to engineer it. Evolution has only driven adaptation for life in the context of one temperate planet so far and it is likely that we, and all other organisms, will need extensive physical and genetic help to survive anywhere else. This book will take you through the first 500 years of this plan to colonize other worlds.

YOU ARE HERE: A Field Guide for Navigating Polluted Information

Whitney Phillips and Ryan M. Milner   240 pages   MARCH 2021

Just as the natural world is besieged by the climate crisis, our digital world is besieged by the network crisis. Polluted information floods social media and our best efforts to help clean up can backfire, sending new toxins spilling across the landscape. *You Are Here* adopts ecological metaphors and the stories they inspire in an attempt to inspire change. Knowing where we stand in relation to so much else allows us to make more humane, more reflective, and more ethical choices online. Most important, it shows how our individual *me* is entwined within a much larger *we*--and how the fates of both are connected. We may not be able to change our environment overnight, but we can begin planting the seeds for a digital Green New Deal.

THE FLIP SIDE OF FREE: Understanding the Economics of the Internet

Michael Kende   256 pages; 3 illus.   FEBRUARY 2021

The upside of the Internet is free Wi-Fi at Starbucks, Facetime over long-distances, and nearly unlimited data for downloading or streaming. The downside is that our data goes to companies that use it to make money, our financial information is exposed to hackers, and the market power of technology companies continues to increase. In *The Flip Side of Free*, Michael Kende shows that free Internet comes at a price. We're beginning to realize this. Our all-purpose techno-caveat is "I love my smart phone," but is it really tracking everything I do? listening to everything I say?
Kende explains the unique economics of the Internet and the paradoxes that result. The most valuable companies in the world are now Internet companies, built on data often exchanged for free content and services. Many users know the impact of this tradeoff on privacy but continue to use the services anyway. Moreover, although the Internet lowers barriers for companies to enter markets, it is hard to compete with the largest providers. We complain about companies having too much data, but developing countries without widespread Internet usage may suffer from the reverse: not enough data collection for the development of advanced services—which leads to a worsening data divide between developed and developing countries.

THE RAVEN'S HAT: Fallen Pictures, Rising Sequences, and Other Mathematical Games

Jonas Peters and Nicolai Meinshausen   192 pages; 25 color illus, 5 b&w illus.   JANUARY 2021

This book presents a series of engaging games that seem unsolvable—but can be solved when they are translated into mathematical terms. How can players find their ID cards when the cards are distributed randomly among twenty boxes? By applying the theory of permutations. How can a player guess the color of her own hat when she can only see other players' hats? Hamming codes, which are used in communication technologies. Like magic, mathematics solves the apparently unsolvable. The games allow readers, including university students or anyone with high school–level math, to experience the joy of mathematical discovery.

The authors set up each game, specifying the number of players and props needed, and show readers how mathematical language reveals the problem's underlying structure. They explain the mathematical concepts with many examples, describe the history of the problem, and offer practical advice.

The MIT Press

ESSENTIAL KNOWLEDGE SERIES

Accessible, concise, beautifully produced books written by leading thinkers on topics of general interest from the cultural and the historical to the scientific and the technical. Foundational knowledge that informs a principled understanding of the world for the non-specialist and lay reader.

Published Fall 2020:

Anticorruption
Robert I. Rotberg

Algorithms
Panos Louridas

Visual Culture
Alexis L. Boylan

Phenomenology
Chad Engelland

Recommendation Engines
Michael Schrage

Behavioral Insights
Michael Hallsworth and Elspeth Kirkman

ESSENTIAL KNOWLEDGE SERIES
CELEBRATING 50 VOLUMES IN 2020

Forthcoming, Spring 2021:

Science Fiction
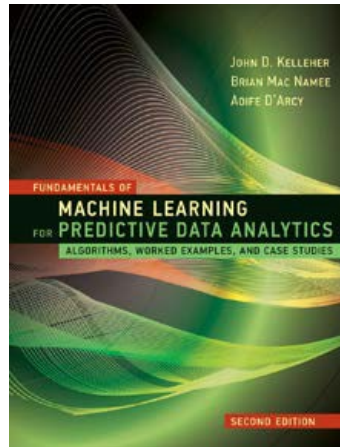**Sherryl Vint**

Hate Speech
Caitlin Ring Carlson
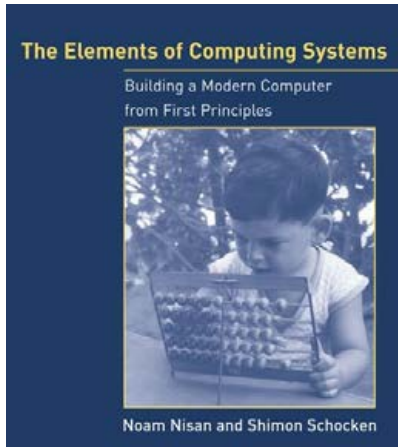
Ketamine
Bita Moghaddam

Annotation
Remi H Kalir and Antero Garcia

For the complete list of Essential Knowledge titles:

https://mitpress.mit.edu/books/series/mit-press-essential-knowledge-series

NEW & REVISED TEXTBOOKS

THE ELEMENTS OF COMPUTING SYSTEMS - Second Edition
Noam Nisan & Shimon Schocken   320 pages   NOVEMBER 2020

The best way to understand how computers work is to build one from scratch, and this extensively revised edition of the classic textbook leads learners through twelve chapters that gradually build the hardware platform and software hierarchy for a simple but powerful computer system. Known as *Nand to Tetris*—a journey that starts with the most elementary logic gate, (*Nand*) and ends, twelve projects later, with a general-purpose computer system capable of running a program (*Tetris*). In the process, learners gain hands-on knowledge of hardware, architecture, operating systems, programming languages, compilers, data structures and algorithms, and software engineering through the use of this practical approach. The first edition inspired *Nand to Tetris* classes in universities, coding boot camps, hacker clubs, and online course platforms. This second edition has been fully revised and restructured, all chapters and projects rewritten with an emphasis on separating abstraction from implementation, and many new sections, figures, and examples added.

FUNDAMENTALS OF MACHINE LEARNING for Predictive Data Analytics - Second Edition
Algorithms, Worked Examples, and Case Studies
John D. Kelleher, Brian Mac Namee, and Aoife D'Arcy   800 pages   OCTOBER 2020

Machine learning is often used to build predictive models by extracting patterns from large datasets. These models are used in predictive data analytics applications including price prediction, risk assessment, predicting customer behavior, and document classification. This introductory textbook offers a detailed and focused treatment of the most important machine learning approaches used in predictive data analytics, covering both theoretical concepts and practical applications. Technical and mathematical material is augmented with explanatory worked examples, and case studies illustrate the application of these models in the broader business context. This second edition covers recent developments in machine learning, especially in a new chapter on deep learning, and two new chapters that go beyond predictive analytics to cover unsupervised learning and reinforcement learning.

The book is accessible, offering nontechnical explanations of the ideas underpinning each approach before introducing mathematical models and algorithms. It is focused and deep, providing students with detailed knowledge on core concepts, giving them a solid basis for exploring the field on their own. Both early chapters and later case studies illustrate how the process of learning predictive models fits into the broader business context. The two case studies describe specific data analytics projects through each phase of development, from formulating the business problem to implementation of the analytics solution. The book can be used as a textbook at the introductory level or as a reference for professionals.

INTRODUCTION TO COMPUTATION AND PROGRAMMING USING PYTHON – Third Edition
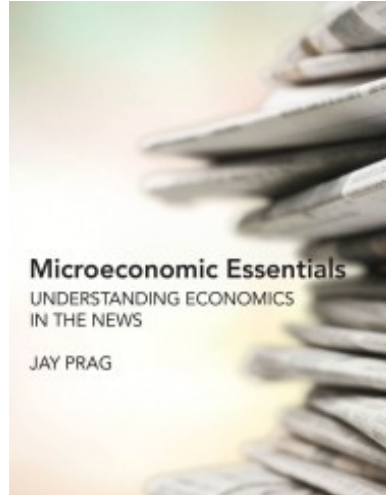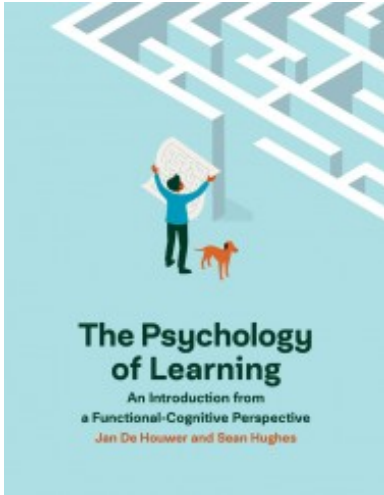John V. Guttag   664 pages, 140 illus.   DECEMBER 2020

This book introduces students with little or no prior programming experience to the art of computational problem solving using Python and various Python libraries, including numpy, matplotlib, random, pandas, and sklearn. It provides students with skills that will enable them to make productive use of computational techniques, including some of the tools and techniques of data science for using computation to model and interpret data as well as substantial material on machine learning. The book is based on an MIT course and was developed for use not only in a conventional classroom but in a massive open online course (MOOC). It contains material suitable for a two-semester introductory computer science sequence.

This third edition has expanded the initial explanatory material, making it a gentler introduction to programming for the beginner, with more programming examples and many more "finger exercises." A new chapter shows how to use the Pandas package for analyzing time series data. All the code has been rewritten to make it stylistically consistent with the PEP 8 standards. Although it covers such traditional topics as computational complexity and simple algorithms, the book focuses on a wide range of topics not found in most introductory texts, including information visualization, simulations to model randomness, computational techniques to understand data, and statistical techniques that inform (and misinform) as well as two related but relatively advanced topics: optimization problems and dynamic programming. The book also includes a Python 3 quick reference guide.

NEW & REVISED TEXTBOOKS

THE PSYCHOLGY OF LEARNING: An Introduction from a Functional-Cognitive Perspective

Jan De Houwer and Sean Hughes   314 pages   AUGUST 2020

Learning unites all living creatures, from simple microbes to complex human beings. But what is learning? And how does it work? For over a century, psychologists have considered such questions. Behavior analysts examined the ways in which the environment shapes behavior, whereas cognitive scientists have sought to understand the mental processes that enable us to learn. This book offers an introduction to the psychology of learning that draws on the key findings and major insights from both functional (behavior analysis) and cognitive approaches.

After an introductory overview, the book reviews research showing how seemingly simple regularities in the environment lead to powerful changes in behavior, from habituation and classical conditioning to operant conditioning effects. It introduces the concept of complex learning and considers the idea that for verbal human beings even seemingly simple types of learning might qualify as instances of complex learning. Finally, it offers many examples of how psychological research on learning is being used to promote human well-being and alleviate such societal problems as climate change.

Throughout the book, boxed text extends the discussion of selected topics and "think it through" questions help readers gain deeper understanding of what they have read. The book can be used as an introductory textbook on the psychology of learning for both undergraduate and postgraduate students or as a reference for researchers who study behavior and thinking.

MICROECONOMIC ESSENTIALS: Understanding Economics in the News

Jay Prag   249 pages   SEPTEMBER 2020

This concise and nontechnical introduction to microeconomics emphasizes concepts over mathematics. Keeping in mind that sometimes the most accurate model is not very useful in the real world, *Microeconomic Essentials* balances economics as mathematics with economics as a social process. Microeconomics is part of daily life; gas prices, wage increases, the rising cost of health care, international trade: all are microeconomic topics. Therefore, like its predecessor, *Macroeconomic Essentials*, this textbook accompanies its explanations with examples and real-world applications.

The book covers the basic market model of supply and demand, showing how this "powerhouse" model can explain most price changes in the market. It discusses government intervention in the market; consumer theory and utility maximization, considering both concepts and real-world issues; the theory of the firm, "de-mathematizing" marginal revenue, marginal cost, and other topics; monopolies; perfect competition; and imperfect competition and oligopolies, as illustrated by OPEC, Coke, and Pepsi. It discusses game theory, reviewing the familiar models and concepts—while cautioning that game theory is best thought of as "a state of mind"; input markets; welfare and public economics, applying the tools presented in previous chapters; and international trade. Each chapter ends with examples and exercises. Appendixes supply answers to sample exam questions and solutions to even-numbered exercises.

CONTACT INFORMATION

The MIT Press is represented throughout the world by the following outstanding Rights Representation:

- **Brazil** | Agência Riff | Joao Paulo Riff: joaopaulo@agenciariff.com.br
- **China** | Bardon-Chinese Media Agency | Ivan Zhang: ivan@bardonchinese.com
- **Taiwan** | Bardon-Chinese Media Agency | Luisa Yeh: luisa@bardonchinese.com
- **France** | Anna Jarota Agency | Anna Jarota: ajarota@ajafr.com
- **Germany** | The Berlin Agency | Frauke Jung-Lindemann: jung-lindemann@berlinagency.de
- **Indonesia** | Maxima Creative Agency | Santo Manurung: santo@cbn.net.id
- **Israel** | The Deborah Harris Agency | Efrat Lev: efrat@thedeborahharrisagency.com
- **Italy** | Reiser Literary Agency | Roberto Gilodi: roberto.gilodi@reiseragency.it
- **Japan** | The English Agency | Tsutomu Yawata: tsutomu_yawata@eaj.co.jp
- **Korea** | Duran Kim Agency (for science) | Duran Kim: duran@durankim.com
- **Korea** | Korea Copyright Center (all else) | Joeun Lee: jelee@kccseoul.com
- **Poland** | Graal Ltd. | Lukasz Wrobel: lukasz.wrobel@graal.com.pl
- **Portugal** | Ilidio Matos | Goncalo Gama Pinto: goncalo.gamapinto@ilidiomatos.com
- **Romania** | The Kessler Agency | Adriana Marina: marina@kessler-agency.ro
- **Russia** | Alexander Korzhenevski Agency | Igor Korzhenevski: igor.akagency@gmail.com
- **Scandinavia** | Sebes & Bisseling Literary Agency | Christiaan Boesenach: boesenach@sebes.nl
- **Spain** | Agencia Literaria Carmen Balcells | Anna Bofill: a.bofill@agenciabalcells.com
- **Thailand, Vietnam, The Philippines** | Tuttle Mori Agency | Pumi Boonyatud: pumi@tuttlemori.co.th
- **Turkey** | The Kayi Agency | Fusun Kayi: fusun@nkliteraryagency.com

Please contact the appropriate agency in your region for translation rights for MIT Press titles.
For all other translation inquiries regarding our books and journals, please contact:

Bill Smith
Director, Business Development
email: smithwmj@mit.edu

Pamela Quick
Subsidiary Rights Manager
email: quik@mit.edu

The MIT Press, One Rogers Street, Cambridge, MA 02142-1209 USA

For information about our available titles, please consult the following sources:

The MIT Press website: https://mitpress.mit.edu/.
Fall 2020 Seasonal catalog: https://mitpress.mit.edu/sites/default/files/F20-seasonal.catalog-070120.pdf