Physical Science Memo Feb 2014 Paper 1 Grade 12

Holograms have been in the public eye for over a half-century, but their influences have deeper cultural roots. No other visual experience is quite like interacting with holograms; no other cultural product melds the technological sublime with magic and optimism in quite the same way. As holograms have evolved, they have left their audiences alternately fascinated, bemused, inspired or indifferent. From expressions of high science to countercultural art to consumer security, holograms have represented modernity, magic and materialism. Their most pervasive impact has been to galvanise hopeful technological dreams. Engineers, artists, hippies and hobbyists have played with, and dreamed about, holograms. This book explores how holograms found a place in distinct cultural settings. It is aimed at readers attracted to pop culture, visual studies and cultural history, scholars concerned with media history, fine art and material studies and, most of all, cross-disciplinary audiences intrigued about how this ubiquitous but still-mysterious visual medium grew up in our midst and became entangled in our culture. This book explores the technical attractions and cultural uses of the hologram, how they were shaped by what came before them, and how they have matured to shape our notional futures. Today, holograms are in our pockets (as identity documents) and in our minds (as gaming fantasies and 'faux hologram' performers). Why aren't they more often in front of our eyes?

Brucellosis is a nationally and internationally regulated disease of livestock with significant consequences for animal health, public health, and international trade. In cattle, the primary cause of brucellosis is Brucella abortus, a zoonotic bacterial pathogen that also affects wildlife, including bison and elk. As a result of the Brucellosis Eradication Program that began in 1934, most of the country is now free of bovine brucellosis. The Greater Yellowstone Area (GYA), where brucellosis is endemic in bison and elk, is the last known B. abortus reservoir in the United States. The GYA is home to more than 5,500 bison that are the genetic descendants of the original free-ranging bison herds that survived in the early 1900s, and home to more than 125,000 elk whose habitats are managed through interagency efforts, including the National Elk Refuge and

22 supplemental winter feedgrounds maintained in Wyoming. In 1998 the National Research Council (NRC) issued a report, Brucellosis in the Greater Yellowstone Area, that reviewed the scientific knowledge regarding B. abortus transmission among wildlifeâ€"particularly bison and elkâ€"and cattle in the GYA. Since the release of the 1998 report, brucellosis has re-emerged in domestic cattle and bison herds in that area. Given the scientific and technological advances in two decades since that first report, Revisiting Brucellosis in the Greater Yellowstone Area explores the factors associated with the increased transmission of brucellosis from wildlife to livestock, the recent apparent expansion of brucellosis in non-feedground elk, and the desire to have science inform the course of any future actions in addressing brucellosis in the GYA.

In 2015, the Air Force Studies Board conducted a workshop, consisting of two data-gathering sessions, to review current research practices employed by the Air Force Office of Scientific Research (AFOSR). Improving the Air Force Scientific Discovery Mission summarizes the presentations and discussions of these two sessions. This report explores the unique drivers associated with management of a 6.1 basic research portfolio in the Department of Defense and investigates current and future practices that may further the effective and efficient management of basic research on behalf of the Air Force

Lists treaties and other international agreements of the United States on record in the Department of State on January 1, 2017 which had not expired by their terms or which had not been denounced by the parties, replaced or superseded by other agreements, or otherwise definitely terminated. Published annually.

Hydraulic Fracturing Impacts and Technologies

Globalization of Defense Materials and Manufacturing

Treaties In Force: A List Of Treaties and Other International Agreements of the United States in Force on January 1, 2016

The President's Fiscal Year 2016 Budget Request for the U.S. Environmental Protection Agency : Hearing Before the Committee on Environment and Public Works, United States Senate, One Hundred Fourteenth Congress, First Session, March 4, 2015

Crime, Violence, and Global Warming

Treaties in Force 2017: A List of Treaties and Other International Agreements in Force on January 1, 2017

Organized the same way as IRS Form 1040 and its companion schedules, and supported by thousands of citations, this handbook is designed to quickly answer all questions about deductions when filing the individual tax return. • Each chapter includes a checklist of deductions and hundreds of entries clarifying what is deductible and what is not. • Entries discuss the deductible items. • Full citations are given for each entry. • Dozens of entries cover items commonly mistaken to be deductions

This edited volume explores Nigeria's domestic and international politics and its implications for the country's national development and international status. Coinciding with the twenty year anniversary of Nigeria's return to democratic rule, this volume considers the state of democracy in Nigeria and examines its successes and challenges with a view towards offering possible solutions for the country's future development. The first half of the volume addresses domestic politics, focusing on current issues such as the 2019 elections, Nigerian federalism, media, state-civil society relations, and Boko Haram terrorism. The second half looks at Nigeria's relations with its African neighbors, discussing the relationships between Nigeria and South Africa, Egypt, Ghana, and Cameroon, among others. Engaging the full spectrum of the politics of a rising African power, this volume will be of interest to students and researchers of comparative politics, international relations, foreign policy, African studies, regional politics, peace, security, conflict, and development studies, as well as African policymakers.

Integrative Weight Management: A Guide for Clinicians intends to educate physicians and nutritionists about the wide ranges of approaches to weight control from non-traditional sources. The options for weight management in conventional practices are limited to a small number of medications, a confusing array of dietary approaches and surgical procedures with their inherent risks and complications. Unfortunately medical practitioners are not exposed to nutrition and weight control principles during training and thus are reluctant to manage their patients weight control issues. This volume is structured into 4 sections: Introduction to Weight Management Disorders; Morbidity and Mortality of Obesity; Therapy of Obesity; and Integrative Medicine and Obesity. Integrative Weight Management: A Guide for Clinicians represents a powerful collaboration of dozens of leading experts in the fields of nutrition, weight management and integrative medicine who have managed countless numbers of patients and summarized the research from thousands of articles to create an up-to- date state of the art guide for healthcare practitioners, allied health professionals and public health authorities who manage those who are overweight/obese along with the associated metabolic consequences.

Emerging economies, social and political transitions, and new ways of doing business are changing the world dramatically. To be the leader in this competitive climate, a defense manufacturing enterprise will require up-to-date capabilities, which include improvements in materials processing, among other things. Also, national and international efforts to mitigate environmentally harmful effects of industrial processes and to improve decision making for handling and disposing of industrial contaminants adds additional requirements for any future efforts. The objective of retaining high-value materials-related manufacturing as a key national competitive capability implies a number of factors. The value of specific manufacturing capabilities could be defined not only in terms of criticality to defense systems but also in relation to technology and knowledge content, importance as a supplier to other industries, and importance to U.S. exports. Requested by Department of Defense (DoD) communities, the National Academies of Sciences, Engineering, and Medicine held a workshop in March 2015 to further explore materials and manufacturing processes. The participants explored changes in the global R&D landscape, technology awareness mechanismsâ€"both DoD's mechanisms and other modelsâ€"and collaboration models and issues in R&D. This publication summarizes the presentations and discussions from the workshop.

Tools for Discussion and Evaluation
Monoclonal Antibodies and the Transformation of Healthcare
Applied Studies in Climate Adaptation
Physics, Devices, and Technology
Improving the Air Force Scientific Discovery Mission
Atomic Doctors

The Irish Yearbook of International Law (IYIL) supports research into Ireland's practice in international affairs and foreign policy, filling a gap in existing legal scholarship and assisting in the dissemination of Irish thinking and practice on matters of international law. On an annual basis, the Yearbook presents peer-reviewed academic articles and book reviews on general issues of international law. Designated correspondents provide reports on international law developments in Ireland, Irish practice in international bodies, Ireland and the Law of the Sea and the law of the European Union as relevant to developments in Ireland. In addition, the Yearbook reproduces key documents that reflect Irish practice on contemporary issues of international law. Publication of the Irish Yearbook of International Law makes Irish practice and opinio juris more readily available to governments, academics and international bodies when determining the content of international law. In providing a forum for the documentation and analysis of North-South relations the Yearbook also makes an important contribution to post-conflict and transitional justice studies internationally. As a matter of editorial policy, the Yearbook seeks to promote a multilateral approach to international affairs, reflecting and reinforcing Ireland's long-standing commitment to multilateralism as a core element of foreign policy.

The transformation of the BRIC acronym from an investment term into a household name of international politics and into a semi-institutionalized political outfit (called BRICS, with a capital ‘S’), is one of the defining developments in international politics in the past decades. While the concept is now commonly used in the general public debate and international media, there has not yet been a comprehensive and scholarly analysis of the history of the BRICS term. The BRICS and the Future of Global Order, Second Edition offers a definitive reference history of the BRICS as a term and as an institution—a chronological narrative and analytical account of the BRICS concept from its inception in 2001 to the political grouping it is today. In addition, it analyzes what the rise of powers like Brazil, Russia, India, China, and South Africa means for the future of global order. Will the BRICS countries seek to establish a parallel system with its own distinctive set of rules, institutions, and currencies of power, rejecting key tenets of liberal internationalism, are will they seek to embrace the rules and norms that define today’s Western-led order?

The book advances knowledge about climate change adaptation practices through a series of case studies. It presents important evidence about adaptation practices in agriculture, businesses, the coastal zone, community services, disaster management, ecosystems, indigneous populations, and settlements and infrastructure. In addition to 38 case studies across these sectors, the book

contains horizon-scoping essays from international experts in adaptation research, including Hallie Eakin, Susanne Moser, Jonathon Overpeck, Bill Solecki, and Gary Yohe. Australia's social-ecological systems have a long history of adapting to climate variability and change, and in recent decades has been a world-leader in implementing and researching adaptation, making this book of universal relevance to all those working to adapt our environment and societies to climate change.

EXPLORING MARKETING RESEARCH, 11E, provides a thorough guide to the design, execution, analysis, and reporting of marketing research to support effective business decisions. The text prepares students to approach marketing research from a management perspective rather than as hands-on practitioners, providing valuable business context while introducing both traditional research methods, such as designing questionnaires, and the latest technological advances, including current data collection devices, data analysis tools, practical approaches to data analytics, and the impact of social media and artifactual online data. In addition to updates based on recent trends and technology, the new 11th Edition features an increased emphasis on ethical and international issues, reflecting their growing importance in modern marketing research. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Revisiting Brucellosis in the Greater Yellowstone Area

Synthetic Biology Analysed

Leveraging Best Practices in Basic Research Management: A Workshop Report

Pathways to Reform

Water Security Under Climate Change

A Sleeping Giant?

Crime, Violence, and Global Warming introduces the many connections between climate change and criminal activity. Conflict over natural resources can escalate to state and non-state actors, resulting in wars, asymmetrical warfare, and terrorism. Crank and Jacoby apply criminological theory to each aspect of this complicated web, helping readers to evaluate conflicting claims about global warming and to analyze evidence of the current and potential impact of climate change on conflict and crime. Beginning with an overview of the science of global warming, the authors move on to the links between climate change, scarce resources, and crime. Their approach takes in the full scope of causes and consequences, present and future, in the United States and throughout the world. The book concludes by looking ahead at the problem of forecasting future security implications if global warming continues or accelerates. This fresh approach to the criminology of climate change challenges readers to examine all sides of this controversial question and to formulate their own analysis of our planet's future.

Increase in green, renewable and sustainable energy demand due to higher environmental impacts (e.g. Greenhouse gases emissions, climate change, etc.) on consumption of fossil fuel resource put down an extra pressure on government, researchers and industrialists. Among several available biofuel options, biohydrogen is considered as one of the best

environmentally clean fuel and a strong candidate to fulfil the future demand of sustainable energy resource. Although, biohydrogen production technology and its use as a fuel is still in infancy stage. Selection of most sustainable production pathway, increase in production upto industrial scale and cost efficiency are some issue still persist with the biohydrogen research. "Biohydrogen Production: Sustainability of Current Technology and Future Perspective" is giving an insight for the sustainable production of biohydrogen at industrial scale. The process of biohydrogen production is complex and to opt the best suited production system for industrial scale is a frantic task. This book will provide an in depth information on all available technologies for biohydrogen production and feedstock options to choose upon. This book is also providing information on present status of the research in the field and possibility to change future fuel economy in to biohydrogen economy. Experts views provided in the chapters by renowned researchers from all over the globe in the field of biohydrogen research made this book a cornucopia of present research and future perspective of biohydrogen. This book is targeted at the researchers working on biohydrogen as well as the bioenergy scientist planning to move towards biohydrogen research. This book will provide a platform for motivation of researchers and industrialists for innovative ideas and thoughts to bring biohydrogen production at industrial scale.

The Department of Commerce operates two telecommunications research laboratories located at the Department of Commerce's Boulder, Colorado, campus: the National Telecommunications and Information Administration's (NTIA's) Institute for Telecommunications Sciences (ITS) and the National Institute of Standards and Technology's (NIST's) Communications Technology Laboratory (CTL). CTL develops appropriate measurements and standards to enable interoperable public safety communications, effective and efficient spectrum use and sharing, and advanced communication technologies. CTL is a newly organized laboratory within NIST, formed mid-2014. As it is new and its planned work represents a departure from that carried out by the elements of which it was composed, this study focuses on its available resources and future plans rather than past work. The Boulder telecommunications laboratories currently play an important role in the economic vitality of the country and can play an even greater role given the importance of access to spectrum and spectrum sharing to the wireless networking and mobile cellular industries. Research advances are needed to ensure the continued evolution and enhancement of the connected world the public has come to expect.

Hydraulic Fracturing Impacts and Technologies: A Multidisciplinary Perspective serves as an introduction to hydraulic fracturing and provides balanced coverage of its benefits and potential negative effects. Presenting a holistic assessment of hydraulic fracturing and its environmental impacts, this book chronicles the history and development of unconventional oil and gas production and describes the risks associated with the use of these technologies. More specifically, it addresses hydraulic fracturing's use and dependence on large amounts of water as a fracturing medium. It examines the limits of reusing flowback and produced water, explores cost-effective ways to clean or effectively dispose of water used in fracturing, and provides suggestions for the efficient use,

discovery, and recycle potential of non-potable water. Utilizing a team of experts from industry and academia, the text provides readers with a multiple lens approach incorporating various perspectives and solutions surrounding this evolving technology. This book: Leads with an overview of hydraulic fracturing operations and technologies Considers a variety of legal issues associated with hydraulic fracturing Summarizes human health and environmental risks associated with hydraulic fracturing operations Discusses the analytes chosen by researchers as possible indicators of groundwater contamination from unconventional drilling processes Presents strategies for reducing the freshwater footprint of hydraulic fracturing Discusses water treatment technologies and solutions to recycle and reuse produced waters, and more Hydraulic Fracturing Impacts and Technologies: A Multidisciplinary Perspective brings together experts from disciplines that include petroleum, civil, and environmental engineering; environmental sciences chemistry toxicology; law; media; and communications; and provides readers with a multidisciplinary outlook and unbiased, scientifically credible solutions to issues surrounding hydraulic fracturing operations.

Biohydrogen Production: Sustainability of Current Technology and Future Perspective

Accessions of Unlimited Distribution Reports

A Multidisciplinary Perspective

Orthogonal Waveforms and Filter Banks for Future Communication Systems

Telecommunications Research and Engineering at the Communications Technology Laboratory of the Department of Commerce

Exploring the Northern Rocky Mountains

This book highlights the likely impacts of climate change in terms of global and national water securities, how different countries are attempting to address these complex problems and to what extent they are likely to succeed. A major global concern at present, especially after the social and economic havoc that has been caused by COVID-19 in only one year, is how we can return to earlier levels of economic development patterns and then further improve the process so that sustainable development goals are reached to the extent possible by 2030, in both developed and developing countries. Mankind is now facing two existential problems over the next several decades. These are climate change and whether the world will have access to enough water to meet all its food, energy, environment and health needs. Much of expected climate change impacts can be seen through the lens of extreme hydrological events, like droughts, floods and other extreme hydrometeorological events. Chapter 7 is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.Chapter 12 is available open access under a Creative Commons Attribution-NonCommercial 4.0 International License via link.springer.com.

This book is the fourth volume of the sub series of the Lecture

Notes in Mobility dedicated to Road Vehicle Automation. lts chapters have been written by researchers, engineers and analysts from all around the globe. Topics covered include public sector activities, human factors and challenges, ethical, legal, energy and technology perspectives, vehicle systems development, as well as transportation infrastructure and planning. The book is based on the Automated Vehicles Symposium which took place in San Francisco, California (USA) in July 2016.

Crime, Violence, and Global WarmingRoutledge

Governance of Marine Fisheries and Biodiversity Conservationexplores governance of the world's oceans with a focus on theimpacts of two inter-connected but historically separate streams ofgovernance: one for fisheries, the other for biodiversityconservation. Chapters, most co-authored by leading expertsfrom both streams, investigate the interaction of these governancestreams from ecological, economic, social and legal perspectives,with emphasis on policies, institutions processes, and outcomes onscales from the global to the local community, and with coverage ofa range of themes and regions of the world. The book opens with chapters setting the historical context for thetwo marine governance streams, and framing the book'sexploration of whether, as the streams increasingly interact, therewill be merger or collision, convergence or co-evolution. Theconcluding chapter synthesizes the insights from throughout thebook, relative to the questions posed in the openingchapters. It also draws conclusions about future needs anddirections in the governance of marine fisheries and biodiversity,vital to the future of the world's oceans. With cutting edge chapters written by many leading internationalexperts in fisheries management and biodiversity conservation, andedited by three leading figures in this crucially importantsubject, Governance of Marine Fisheries and BiodiversityConservation is an essential purchase for fisheries scientists,economists, resource managers and policymakers, and all thoseworking in fields of biodiversity conservation, marine ecology, andcoastal livelihoods. Libraries in all universities and researchestablishments where environmental and/or marine studies,conservation, ocean policy and law, biological and life sciences,and fisheries management are studied and taught, should have copiesof this most important book.

Supplement

Nigeria's Domestic and International Politics in the Twenty-First Century

Oversight Hearing

U.S. Technology Innovations and the Evolution of International

Security Norms
Governance of Marine Fisheries and Biodiversity Conservation
A Guide for Clinicians

The Office of the Under Secretary of Defense (Personnel & Readiness), referred to throughout this report as P&R, is responsible for the total force management of all Department of Defense (DoD) components including the recruitment, readiness, and retention of personnel. Its work and policies are supported by a number of organizations both within DoD, including the Defense Manpower Data Center (DMDC), and externally, including the federally funded research and development centers (FFRDCs) that work for DoD. P&R must be able to answer questions for the Secretary of Defense such as how to recruit people with an aptitude for and interest in various specialties and along particular career tracks and how to assess on an ongoing basis service members' career satisfaction and their ability to meet new challenges. P&R must also address larger-scale questions, such as how the current realignment of forces to the Asia-Pacific area and other regions will affect recruitment, readiness, and retention. While DoD makes use of large-scale data and mathematical analysis in intelligence, surveillance, reconnaissance, and elsewhereâ€"exploiting techniques such as complex network analysis, machine learning, streaming social media analysis, and anomaly detectionâ€"these skills and capabilities have not been applied as well to the personnel and readiness enterprise. Strengthening Data Science Methods for Department of Defense Personnel and Readiness Missions offers and roadmap and implementation plan for the integration of data analysis in support of decisions within the purview of P&R.

The world of the academic journal continues to be one of radical change. A follow-up volume to the first edition of The Future of the Academic Journal, this book is a significant contribution to the debates around the future of journals publishing. The book takes an international perspective and looks ahead at how the industry will continue to develop over the next few years. With contributions from leading academics and industry professionals, the book provides a reliable and impartial view of this fast-changing area. The book includes various discussions on the future of journals, including the influence of business models and the growth of journals publishing, open access and academic libraries, as well as journals published in Asia, Africa and South America. looks at a fast moving and vital area for academics and publishers contains contributions from leading international figures from universities and publishers

The Department of Commerce operates two telecommunications research laboratories located at the Department of Commerce's

Boulder, Colorado, campus: the National Telecommunications and Information Administration's (NTIA's) Institute for Telecommunications Sciences (ITS) and the National Institute of Standards and Technology's (NIST's) Communications Technology Laboratory (CTL). ITS serves as a principal federal resource for solving the telecommunications concerns of federal agencies, state and local governments, private corporations and associations, standards bodies, and international organizations. ITS could provide an essential service to the nation by being a principal provider of instrumentation and spectrum measurement services; however, the inter-related shortages of funding, staff, and a coherent strategy limits its ability to fully function as a research laboratory. This report examines the institute's performance, resources, and capabilities and the extent to which these meet customer needs. The Boulder telecommunications laboratories currently play an important role in the economic vitality of the country and can play an even greater role given the importance of access to spectrum and spectrum sharing to the wireless networking and mobile cellular industries. Research advances are needed to ensure the continued evolution and enhancement of the connected world the public has come to expect.
This book is the first comparative volume on European research and higher education policies.
Strengthening Data Science Methods for Department of Defense Personnel and Readiness Missions
Nuclear Weapons and the Environment
Gallium Nitride (GaN)
Credits and Conflict at The City University of New York
More Human
The BRICS and the Future of Global Order

Addresses a Growing Need for High-Power and High-Frequency Transistors Gallium Nitride (GaN): Physics, Devices, and Technology offers a balanced perspective on the state of the art in gallium nitride technology. A semiconductor commonly used in bright light-emitting diodes, GaN can serve as a great alternative to existing devices used in microelectronics. It has a wide band gap and high electron mobility that gives it special properties for applications in optoelectronic, high-power, and high-frequency devices, and because of its high off-state breakdown strength combined with excellent on-state channel conductivity, GaN is an ideal candidate for switching power transistors. Explores Recent Progress in High-Frequency GaN Technology Written by a panel of academic and industry experts from around the globe, this book reviews the advantages of GaN-based material systems suitable for high-frequency, high-power applications. It provides an overview of the semiconductor environment, outlines the fundamental device physics of GaN, and describes GaN materials and device structures that are needed for the next stage of microelectronics and optoelectronics. The book details the development of radio frequency (RF) semiconductor devices and circuits, considers the current challenges

that the industry now faces, and examines future trends. In addition, the authors: Propose a design in which multiple LED stacks can be connected in a series using interband tunnel junction (TJ) interconnects Examine GaN technology while in its early stages of high-volume deployment in commercial and military products Consider the potential use of both sunlight and hydrogen as promising and prominent energy sources for this technology Introduce two unique methods, PEC oxidation and vapor cooling condensation methods, for the deposition of high-quality oxide layers A single-source reference for students and professionals, Gallium Nitride (GaN): Physics, Devices, and Technology provides an overall assessment of the semiconductor environment, discusses the potential use of GaN-based technology for RF semiconductor devices, and highlights the current and emerging applications of GaN.

"The field trips in this guidebook are associated with the GSA Rocky Mountain-Cordilleran Joint Section Meeting, which will take place in Bozeman, Montana, in May 2014"--

In Nuclear Weapons and the Environment, John Perry highlights the environmental damage caused by nuclear device testing. The failure of the Nuclear Proliferation Treaty and the continued proliferation of nuclear weapons is a grave risk to not only human life but to the environment. Pointing to the unstable political situation between a variety of state and non-state actors, the remediation of nuclear test sites, and the risks involved in the production of nuclear weapons, Perry makes a clear case for the dire importance of non-proliferation.

An unflinching examination of the moral and professional dilemmas faced by physicians who took part in the Manhattan Project. After his father died, James L. Nolan, Jr., took possession of a box of private family materials. To his surprise, the small secret archive contained a treasure trove of information about his grandfather's role as a doctor in the Manhattan Project. Dr. Nolan, it turned out, had been a significant figure. A talented ob-gyn radiologist, he cared for the scientists on the project, organized safety and evacuation plans for the Trinity test at Alamogordo, escorted the "Little Boy" bomb from Los Alamos to the Pacific Islands, and was one of the first Americans to enter the irradiated ruins of Hiroshima and Nagasaki. Participation on the project challenged Dr. Nolan's instincts as a healer. He and his medical colleagues were often conflicted, torn between their duty and desire to win the war and their oaths to protect life. Atomic Doctors follows these physicians as they sought to maximize the health and safety of those exposed to nuclear radiation, all the while serving leaders determined to minimize delays and maintain secrecy. Called upon both to guard against the harmful effects of radiation and to downplay its hazards, doctors struggled with the ethics of ending the deadliest of all wars using the most lethal of all weapons. Their work became a very human drama of ideals, co-optation, and complicity. A vital and vivid account of a largely unknown chapter in atomic history, Atomic Doctors is a profound meditation on the moral dilemmas that ordinary people face in extraordinary times.

Bender's Dictionary of 1040 Deductions

Calendars of the United States House of Representatives and History of Legislation

The Lock and Key of Medicine

Shared Governance for Sustainable Working Landscapes

New Constellations in European Research and Higher Education Governance Building the Knowledge Economy in Europe

Synthetic biology is a dynamic, young, ambitious, attractive, and heterogeneous scientific discipline. It is constantly developing and changing, which makes societal evaluation of this emerging new science a challenging task, prone to misunderstandings. Synthetic biology is difficult to capture, and confusion arises not only regarding which part of synthetic biology the discussion is about, but also with respect to the underlying concepts in use. This book offers a useful toolbox to approach this complex and fragmented field. It provides a biological access to the discussion using a 'layer' model that describes the connectivity of synthetic or semisynthetic organisms and cells to the realm of natural organisms derived by evolution.Instead of directly reviewing the field as a whole, firstly our book addresses the characteristic features of synthetic biology that are relevant to the societal discussion. Some of these features apply only to parts of synthetic biology, whereas others are relevant to synthetic biology as a whole. In the next step, these new features are evaluated with respect to the different areas of synthetic biology. Do we have the right words and categories to talk about these new features? In the third step, traditional concepts like “life” and “artificiality” are scrutinized with regard to their discriminatory power. This approach may help to differentiate the discussion on synthetic biology. Lastly our refined view is utilized for societal evaluation. We have investigated the public views and attitudes to synthetic biology. It also includes the analysis of ethical, risk and legal questions, posed by present and future practices of synthetic biology.This book contains the results of an interdisciplinary research project and presents the authors’ main findings and recommendations. They are addressed to science, industry, politics and the general public interested in this upcoming field of biotechnology.

The mission of the United States Army is to fight and win our nation's wars by providing prompt, sustained land dominance across the full range of military operations and spectrum of conflict in support of combatant commanders. Accomplishing this mission rests on the ability of the Army to equip and move its forces to the battle and sustain them while they are engaged. Logistics provides the backbone for Army combat operations. Without fuel, ammunition, rations, and other supplies, the Army would grind to a halt. The U.S. military must be prepared to fight anywhere on the globe and, in an era of coalition warfare, to logistically support its allies. While aircraft can move large amounts of supplies, the vast majority must be carried on ocean going vessels and unloaded at ports that may be at a great distance from the battlefield. As the wars in Afghanistan and Iraq have shown, the costs of convoying vast quantities of supplies is tallied not only in economic terms but also in terms of lives lost in the movement of the materiel. As the ability of potential enemies to interdict movement to the battlefield and interdict movements in the battlespace increases, the challenge of logistics grows even larger. No matter how the nature of battle develops, logistics will remain a key factor.

Force Multiplying Technologies for Logistics Support to Military Operations explores Army logistics in a global, complex environment that includes the increasing use of antiaccess and area-denial tactics and technologies by potential adversaries. This report describes new technologies and systems that would reduce the demand for logistics and meet the demand at the point of need, make maintenance more efficient, improve inter- and intratheater mobility, and improve near-real-time, in-transit visibility. Force Multiplying Technologies also explores options for the Army to operate with the other services and improve its support of Special Operations Forces. This report provides a logistics-centric research and development investment strategy and illustrative examples of how improved logistics could look in the future.

A personal account of the implementation of a controversial credit transfer program at the nation's third-largest university Change is notoriously difficult in any large organization. Institutions of higher education are no exception. From 2010 to 2013, Alexandra Logue, then chief academic officer of The City University of New York, led a controversial reform initiative known as Pathways. The program aimed to facilitate the transfer of credits among the university's nineteen constituent colleges in order to improve graduation rates—a long-recognized problem for public universities such as CUNY. Hotly debated, Pathways met with vociferous resistance from many faculty members, drew the attention of local and national media, and resulted in lengthy legal action. In Pathways to Reform, Logue, the figure at the center of the maelstrom, blends vivid personal narrative with an objective perspective to tell how this hard-fought plan was successfully implemented at the third-largest university in the United States. Logue vividly illustrates why change does or does not take place in higher education, and the professional and personal tolls exacted. Looking through the lens of the Pathways program and factoring in key players, she analyzes how governance structures and conflicting interests, along with other institutional factors, impede change—which, Logue shows, is all too rare, slow, and costly. In this environment, she argues, it is shared governance, combined with a strong, central decision-making authority, that best facilitates necessary reform. Logue presents a compelling investigation of not only transfer policy but also power dynamics and university leadership. Shedding light on the inner workings of one of the most important public institutions in the nation, Pathways to Reform provides the first full account of how, despite opposition, a complex higher education initiative was realized. All net royalties received by the author from sales of this book will be donated to The City University of New York to support undergraduate student financial aid.

This book is the first to tell the extraordinary yet unheralded history of monoclonal antibodies, or Mabs. Though unfamiliar to most nonscientists, these microscopic protein molecules are everywhere, quietly shaping our lives and healthcare. They have radically changed understandings of the pathways of disease, enabling faster, cheaper, and more accurate clinical diagnostic testing. And they lie at the

heart of the development of genetically engineered drugs such as interferon and blockbuster personalized therapies such as Herceptin. Lara V. Marks recounts the risks and opposition that a daring handful of individuals faced while discovering and developing Mabs, and she addresses the related scientific, medical, technological, business, and social challenges that arose. She offers a saga of entrepreneurs who ultimately changed the healthcare landscape and brought untold relief to millions of patients. Even so, controversies over Mabs remain, which the author explores through the current debates on their cost-effectiveness.

United States Code

Interaction and Co-evolution

Proceedings of a Workshop

Designing a World Where People Come First

Exploring Marketing Research

The Future of the Academic Journal

Treaties in Force is prepared by the Department of State for the purpose of providing information on treaties and other international agreements to which the United States has become a party and which are carried on the records of the Department of State as being in force as of its stated publication date, January 1, 2016. Treaties in Force is arranged in two sections: Section 1 includes bilateral treaties and other international agreements listed by country or other international entity with subject headings under each entry. Arrangements with territorial possessions of a country appear at the end of the entry for that country. In some cases, treaties and international agreements applicable to a territory prior to its independence are included in the entry for that country on the basis of its assumption of treaty obligations upon becoming independent, as noted at the beginning of the entry for that country. For convenience, some treaties and agreements concluded with countries whose name or statehood status has changed continue to be listed under the name in use at the time the agreement was concluded, if the title of the treaty or agreement has not been formally amended. Section 2 lists multilateral treaties and other international agreements to which the United States is a party, arranged by subject. The depositary is the authoritative source for a current list of parties and information on other matters concerning the status of the agreement, and status information often changes. Information is provided on the depositary for the agreement in question, and contact information, including an Internet site is provided for the depositary where available. Related products: International & Foreign Affairs resources collection can be found here: https: //bookstore.gpo.gov/catalog/international-foreign-affairs

Sustaining our agricultural landscapes is no longer just a technical, scientific or even political problem, but it has evolved into a socially complex, so-called wicked problem of conflicting social governance and economics. This creates an extreme economic obstacle where the value of ecosystem services remains low and diffuse and the transactions costs remain high and multiple.Using Uber-like business platform technology and a shared governance model, a symbiotic demand for

environmental benefits is created. Enabling multi-sector transactions for environmental benefits, this platform innovation would remedy the "tragedy of the commons"; the economic nemesis to achieving landscape sustainability. In a nutshell, to sustain our agricultural landscapes a transdisciplinary approach supported by a shared governance model housed within a multi-sided platform in needed. This book introduces an assessment framework identifying governance actors, styles and ratios for socio-ecological systems. The assessment uses a new governance compass to identify the types of actors completing which tasks and identifies the styles of governance used to complete the tasks. It is aimed to anyone involved in sustainability science, agricultural policy planning, or integrated landscape design.

Orthogonal Waveforms and Filter Banks for Future Communication Systems provides an up-to-date account of orthogonal filter bank-based multicarrier (FBMC) systems and their applications in modern and future communications, highlighting the crucial role that advanced multicarrier waveforms play. It is an up-to-date overview of the theory, algorithms, design and applications of FBMC systems at both the link- and system levels that demonstrates the various gains offered by FBMC over existing transmission schemes via both simulation and test bed experiments. Readers will learn the requirements and challenges of advanced waveform design for future communication systems, existing FBMC approaches, application areas, and their implementation. In addition, the state-of-the-art in PHY- and MAC-layer solutions based on FBMC techniques, including theoretical, algorithmic and implementation aspects are explored. Presents a unique and up-to-date source for signal processing/communications researchers and practitioners Presents a homogeneous, comprehensive presentation of the subject Covers offset-QAM based FBMC (FBMC/OQAM) and its variants, including its history, signal processing interest and potential for maximum spectral efficiency, among other features

People feel angry and let down by their leaders, as well as by the institutions that dominate their lives: political parties, government bureaucracy, and corporations. Yet the cause of this malaise, according to political -- advisor -- turned -- tech -- CEO Steve Hilton, is not being addressed by politicians on the left or the right. Hilton argues that much of our daily experience -- from the food we eat, to the governments we elect, to the economy on which our wealth depends, to the way we care for our health and well -- being -- has become too big, too bureaucratic, and too distant from the human scale. More Human sets out a radical manifesto for change, aimed at the root causes of our problems rather than just the symptoms. Whether it's using the latest advances in neuroscience to inform the fight against poverty and inequality, or applying lessons from America's most radical schools to transform our children's education, this book is an agenda for rethinking and redesigning the outdated systems and structures of our politics, government, economy, and society to make them more suited to the way we want to live our lives today. To make them more human.

A Cultural History
Telecommunications Research and Engineering at the Institute for Telecommunication Sciences of the Department of Commerce
Holograms
Integrative Weight Management
Arms and Influence
The Irish Yearbook of International Law, Volume 8, 2013
Arms and Influence explores the complex relationship between technology, policymaking, and international norms. Modern technological innovations such as the atomic bomb, armed unmanned aerial vehicles (UAVs), and advanced reconnaissance satellites have fostered debates about the boundaries of international norms and legitimate standards of behavior. These advances allow governments new opportunities for action around the world and have, in turn, prompted a broader effort to redefine international standards in areas such as self-defense, sovereignty, and preemptive strikes. In this book, Jeffrey S. Lantis develops a new theory of norm change and identifies its stages, including redefinition (involving domestic political deliberations) and constructive norm substitution (in multilateral institutions). He deftly takes some of the most controversial new developments in military technologies and embeds them in international relations theory. The case evidence he presents suggests that periods of change are underway across numerous different issue areas.
Road Vehicle Automation 4
An Ecological Case for Non-proliferation
Meeting the Nation's Telecommunications Needs
Force Multiplying Technologies for Logistics Support to Military Operations