

Communicating Science The Scientific Article From The 17th Century To The Present

Learn more about how people communicate during crises with this insightful collection of resources In *Communicating Science in Times of Crisis: COVID-19 Pandemic*, distinguished academics and editors H. Dan O'Hair and Mary John O'Hair have delivered an insightful collection of resources designed to shed light on the implications of attempting to communicate science to the public in times of crisis. Using the recent and ongoing coronavirus outbreak as a case study, the authors explain how to balance scientific findings with social and cultural issues, the ability of media to facilitate science and mitigate the impact of adverse events, and the ethical repercussions of communication during unpredictable, ongoing events. The first volume in a set of two, *Communicating Science in Times of Crisis: COVID-19 Pandemic* isolates a particular issue or concern in each chapter and exposes the difficult choices and processes facing communicators in times of crisis or upheaval. The book connects scientific issues with public policy and creates a coherent fabric across several communication studies and disciplines. The subjects addressed include: A detailed background discussion of historical medical crises and how they were handled by the scientific and political communities of the time Cognitive and emotional responses to communications during a crisis Social media communication during a crisis, and the use of social media by authority figures during crises Communications about health care-related subjects Data strategies undertaken by people in authority during the coronavirus crisis Perfect for communication scholars and researchers who focus on media and communication, *Communicating Science in Times of Crisis: COVID-19 Pandemic* also has a place on the bookshelves of those who specialize in particular aspects of the contexts raised in each of the chapters: social media communication, public policy, and health care.

This book is a comprehensive guide to scientific communication that has been used widely in courses and workshops as well as by individual scientists and other professionals since its first publication in 2002. This revision accounts for the many ways in which the globalization of research and the changing media landscape have altered scientific communication over the past decade. With an increased focus throughout on how research is communicated in industry, government, and non-profit centers as well as in academia, it now covers such topics as the opportunities and perils of online publishing, the need for translation skills, and the communication of scientific findings to the broader world, both directly through speaking and writing and through the filter of traditional and social media. It also offers advice for those whose research concerns controversial issues, such as climate change and emerging viruses, in which clear and accurate communication is especially critical to the scientific community and the wider world.

Modern science communication has emerged in the twentieth century as a field of study, a body of practice and a profession—and it is a practice with deep historical roots. We have seen the birth of interactive science centres, the first university actions in teaching and conducting research, and a sharp growth in employment of science communicators. This collection charts the emergence of modern science communication across the world. This is the first volume to map investment around the globe in science centres, university courses and research, publications and conferences as well as tell the national stories of science communication. How did it all begin? How has development varied from one country to another? What motivated governments, institutions and people to see science communication as an answer to questions of the social place of science? *Communicating Science* describes the pathways followed by 39 different countries. All continents and many cultures are represented. For some countries, this is the first time that their science communication story has been told. Science communication, as a multidisciplinary field, has developed remarkably in recent years. It is now a distinct and exceedingly dynamic science that melds theoretical approaches with practical experience. Formerly well-established theoretical models now seem out of step with the social reality of the sciences, and the previously clear-cut delineations and interacting domains between cultural fields have blurred. *Communicating Science in Social Contexts* examines that shift, which itself depicts a profound recomposition of knowledge fields, activities and dissemination practices, and the value accorded to science and technology. *Communicating Science in Social Contexts* is the product of long-term effort that would not have been possible without the research and expertise of the Public Communication of Science and Technology (PCST) Network and the editors. For nearly 20 years, this informal, international network has been organizing events and forums for discussion of the public communication of science.

The proposal to vaccinate adolescent girls against the human papilloma virus ignited political controversy, as did the advent of fracking and a host of other emerging technologies. These disputes attest to the persistent gap between expert and public perceptions. Complicating the communication of sound science and the debates that surround the societal applications of that science is a changing media environment in which misinformation can elicit belief without corrective context and likeminded individuals are prone to seek ideologically comforting information within their own self-constructed media enclaves. Drawing on the expertise of leading science communication scholars from six countries, *The Oxford Handbook of the Science of Science Communication* not only charts the media landscape - from news and entertainment to blogs and films - but also examines the powers and perils of human biases - from the disposition to seek confirming evidence to the inclination to overweight endpoints in a trend line. In the process, it draws together the best available social science on ways to communicate science while also minimizing the pernicious effects of human bias. The Handbook adds case studies exploring instances in which communication undercut or facilitated the access to scientific evidence. The range of topics addressed is wide, from genetically engineered organisms and nanotechnology to vaccination controversies and climate change. Also unique to this book is a focus on the complexities of involving the public in decision making about the uses of science, the regulations that should govern its application, and the ethical boundaries within which science should operate. The Handbook is an invaluable resource for researchers in the communication fields, particularly in science and health communication, as well as to scholars involved in research on scientific topics susceptible to distortion in partisan debate.

Electronic publishing and electronic means of text and data presentation have changed enormously since the first edition was first published in 1997. This second edition applies traditional principles to today's, modern techniques. In addition to substantial changes on the poster presentations and visual aids chapters, the chapter on proposal writing discusses in more detail grant writing proposals. A new chapter has also been dedicated to international students studying in the United States. Selected Contents: -Searching and Reviewing Scientific Literature -The Graduate Thesis -Publishing in Scientific Journals -Reviewing and Revising -Titles and Abstracts -Ethical and Legal Issues -Scientific Presentations -Communication without words -The Oral Presentation -Poster Presentations

Chemistry plays a critical role in daily life, impacting areas such as medicine and health, consumer products, energy production, the ecosystem, and many other areas. Communicating about chemistry in informal environments has the potential to raise public interest and understanding of chemistry around the world. However, the chemistry community lacks a cohesive, evidence-based guide for designing effective communication activities. This report is organized into two sections. Part A: *The Evidence Base for Enhanced Communication* summarizes evidence from communications, informal learning, and chemistry education on effective practices to communicate with and engage publics outside of the classroom; presents a framework for the design of chemistry communication activities; and identifies key areas for future research. Part B: *Communicating Chemistry: A Framework for Sharing Science* is a practical guide intended for any chemists to use in the design, implementation, and evaluation of their public communication efforts.

Online video's unique capacity to reach large audiences makes it a powerful tool to communicate science and technology to the general public. The outcome of the international research project "Videonline," this book provides a unique insight into the key elements of online science videos, such as narrative trends, production characteristics, and issues of scientific rigor. It offers various methodological

approaches: a literature review, content analysis, and interviews and surveys of expert practitioners to provide information on how to maintain standards of rigour and technical quality in video production.

Science is a way of knowing about the world. At once a process, a product, and an institution, science enables people to both engage in the construction of new knowledge as well as use information to achieve desired ends. Access to science—whether using knowledge or creating it—necessitates some level of familiarity with the enterprise and practice of science: we refer to this as science literacy. Science literacy is desirable not only for individuals, but also for the health and well-being of communities and society. More than just basic knowledge of science facts, contemporary definitions of science literacy have expanded to include understandings of scientific processes and practices, familiarity with how science and scientists work, a capacity to weigh and evaluate the products of science, and an ability to engage in civic decisions about the value of science. Although science literacy has traditionally been seen as the responsibility of individuals, individuals are nested within communities that are nested within societies—and, as a result, individual science literacy is limited or enhanced by the circumstances of that nesting. Science Literacy studies the role of science literacy in public support of science. This report synthesizes the available research literature on science literacy, makes recommendations on the need to improve the understanding of science and scientific research in the United States, and considers the relationship between scientific literacy and support for and use of science and research.

Scientific and Medical Communication: A Guide for Effective Practice prepares readers to effectively communicate in professional scientific communities. The material in this book is firmly grounded in more than 500 published research findings and editorials by scientific writers, authors, and journal editors. Thus, this text provides the broadest and most comprehensive analysis of scientific writing. In addition, carefully selected and thoroughly annotated examples from the scientific and medical literature demonstrate the recommendations covered in the text. These real-world examples were carefully selected so that the scientific content can be understood by those without a detailed background in any particular scientific or medical field—thus clearly illustrating the content organization and writing style. This text will prepare individuals to write and edit scientific manuscripts, conference abstracts, posters, and press releases according to journal and professional standards. Readers will also learn to conduct effective searches of the scientific and medical literature, as well as proper citation practices.

Communicating Science: The Scientific Article from the 17th Century to the Present Oxford University Press

Read this book before you write your thesis or journal paper! **Communicating Science** is a textbook and reference on scientific writing oriented primarily at researchers in the physical sciences and engineering. It is written from the perspective of an experienced researcher. It draws on the authors' experience of teaching and working with both native English speakers and English as a Second Language (ESL) writers. For the range of topics covered, this book is relatively short and tersely written, in order to appeal to busy researchers. **Communicating Science** offers comprehensive guidance on: Research reports: journal papers, theses, and internal reports; Review and publication process; Conference and seminar presentations: lectures and posters; Research proposals; Business plans; Patents; Popular media; Correspondence, CV's, and job hunting; Writing well: writing strategies and guidance on English composition and grammar. Graduate students and early career researchers will be guided through the researcher's basic communication tasks: writing theses, journal papers, and internal reports, presenting lectures and posters, and preparing research proposals. Extensive best practice examples and analyses of common problems are presented. Advanced researchers who aim to commercialize their research results will be introduced to business plans and patents, so that they can communicate optimally with patent attorneys and business analysts. Likewise, advanced researchers will be assisted in conveying the results of their research to the industrial and business community, governmental circles, and the general public in the chapter on popular media. Researchers at all levels will find the chapter on CV's and job hunting helpful. The **Writing Well** chapter will assist researchers to improve their English usage in scientific writing. This chapter is oriented both at native English speakers, who have an intuitive command of English but often lack formal instruction on grammar and structure, and non-native English writers, who often have had formal instruction but lack intuitive grasp of what sounds good. Mentors will find the book a useful tool for systematically guiding their students in their early writing efforts. If your students read this book first, you will save time! **Communicating Science** may serve as a textbook for graduate level courses in scientific writing.

This book explores effective approaches for communicating science to the public in developing countries. Offering multiple perspectives on this important topic, it features 17 chapters that represent the efforts of 23 authors from eight countries: Australia, Bangladesh, India, Ireland, New Zealand, USA, Singapore and South Africa. Inside, readers will find a diversity of approaches to communicate science to the public. The book also highlights some of the challenges that science communicators, science policy makers, science teachers, university academics in the sciences and even entrepreneurs may face in their attempts to boost science literacy levels in their countries. In addition, it shares several best practices from the developed world that may help readers create communication initiatives that can lead to increased engagement with science in communities in the Asia Pacific region and beyond. Given the pervasive influence of science and technology in today's society, their impact will only increase in the years to come as the world becomes more globalized and the economies of countries become more inter-linked. This book will be a useful source of reference for developing countries looking to tap into the potential of science for nation building and effectively engage their communities to better understand science and technology. Supported by the Pacific Science Association, Hawaii. Balloons & marginal instructions; Writing a scientific paper; Preparation of the typescript and figures; Speaking at scientific meetings; Addressed to those for whom English is a foreign language; An appeal to North Americans; Preparation of a dissertation or thesis; Bibliography; Index.

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This ambitious text is the first of its kind to summarize the theory, research, and practice related to pedagogical content knowledge. The audience is provided with a functional understanding of the basic tenets of the construct as well as its applications to research on science teacher education and the development of science teacher education programs. Science communication is a rapidly expanding area and meaningful engagement between scientists and the public requires effective communication. Designed to help the novice scientist get started with science communication, this unique guide begins with a short history of science communication before discussing the design and delivery of an effective engagement event. Along with numerous case studies written by highly regarded international contributors, the book discusses how to approach face-to-face science communication and engagement activities with the public while providing tips to avoid potential pitfalls. This book has been written for scientists at all stages of their career, including undergraduates and postgraduates wishing to engage with effective science communication for the first time, or looking to develop their science communication portfolio.

Science and technology are embedded in virtually every aspect of modern life. As a result, people face an increasing need to integrate information from science with their personal values and other considerations as they make important life decisions about medical care, the safety of foods, what to do about climate change, and many other issues. Communicating science effectively, however, is a complex task and an acquired skill. Moreover, the approaches to communicating science that will be most effective for specific audiences and circumstances are not obvious. Fortunately, there is an expanding science base from diverse disciplines that can support science communicators in making these determinations. Communicating Science Effectively offers a research agenda for science communicators and researchers seeking to apply this research and fill gaps in knowledge about how to communicate effectively about science, focusing in particular on issues that are contentious in the public sphere. To inform this research agenda, this publication identifies important influences " psychological, economic, political, social, cultural, and media-related " on how science related to such issues is understood, perceived, and used.

In the 25 years since the 'Bodmer Report' kick-started the public understanding of science movement, there has been something of a revolution in science communication. However, despite the ever-growing demands of the public, policy-makers and the media, many scientists still find it difficult to successfully explain and publicise their activities or to understand and respond to people's hopes and concerns about their work. Bringing together experienced and successful science communicators from across the academic, commercial and media worlds, this practical guide fills this gap to provide a one-stop resource covering science communication in its many different forms. The chapters provide vital background knowledge and inspiring ideas for how to deal with different situations and interest groups. Entertaining personal accounts of projects ranging from podcasts, to science festivals, to student-run societies give working examples of how scientists can engage with their audiences and demonstrate the key ingredients in successful science communication.

Ideal for students and practitioners in science, engineering and medicine, this book gives an insight into science's place in society.

A complete guide to the creation of compelling science photographs.

Are you wishing you knew how to better communicate science, without having to read several hundred academic papers and books on the topic? Luckily Dr Craig Cormick has done this for you! This highly readable and entertaining book distils best practice research on science communication into accessible chapters, supported by case studies and examples. With practical advice on everything from messages and metaphors to metrics and ethics, you will learn what the public think about science and why, and how to shape scientific research into a story that will influence beliefs, behaviours and policies.

This book presents the first comprehensive set of principles for an ethics of science communication. We all want to communicate science ethically, but how do we do so? What does being ethical when communicating science even mean? The authors argue that ethical reasoning is essential training for science communicators. The book provides an overview of the relationship between values, science, and communication. Ethical problems are examined to consider how to create an ethics of science communication. These issues range from the

timing of communication, narratives, accuracy and persuasion, to funding and the client-public tension. The book offers a tailor-made ethics of science communication based on principlism. Case studies are used to demonstrate how this tailor-made ethics can be applied in practice. This book examines the expanding world of genres on the Internet to understand issues of science communication today. The book explores how some traditional print genres have become digital, how some genres have evolved into new digital hybrids, and how and why new genres have emerged and are emerging in response to new rhetorical exigences and communicative demands. Because social actions are in constant change and, ensuing from this, genres evolve faster than ever, it is important to gain insight into the interrelations between old genres and new genres and the processes underpinning the construction of new genre sets, chains and assemblages for communicating scientific research to both expert and diversified audiences. In examining scientific genres on the Internet this book seeks to illustrate the increasing diversification of genre ecologies and their underlying social, disciplinary and individual agendas.

Successful scientists must be effective communicators within their professions. Without those skills, they could not write papers and funding proposals, give talks and field questions, or teach classes and mentor students. However, communicating with audiences outside their profession - people who may not share scientists' interests, technical background, cultural assumptions, and modes of expression - presents different challenges and requires additional skills. Communication about science in political or social settings differs from discourse within a scientific discipline. Not only are scientists just one of many stakeholders vying for access to the public agenda, but the political debates surrounding science and its applications may sometimes confront scientists with unfamiliar and uncomfortable discussions involving religious values, partisan interests, and even the trustworthiness of science. The Science of Science Communication II is the summary of a Sackler Colloquium convened in September 2013. At this event, leading social, behavioral, and decision scientists, other scientists, and communication practitioners shared current research that can improve the communication of science to lay audiences. In the Sackler Colloquia tradition, the meeting also allowed social and natural scientists to identify new opportunities to collaborate and advance their own research, while improving public engagement with science. Speakers provided evidence-based guidance on how to listen to others so as to identify their information needs, ways of thinking about the world, and the cultural stereotypes regarding scientists. They delved deeply into the incentive systems that shape what scientists study and how they report their work, the subtle changes in framing that can influence how messages are interpreted, the complex channels that determine how messages flow, and the potential politicization of scientific evidence.

Examines new genres of online science communication to further explore how boundaries between experts and nonexperts continue to shift.

The "Manual on Scientific Communication for Postgraduate Students and Young Researchers in Technical, Natural, and Life Sciences" is meant to be a practical guide for the preparation of theses, papers, posters, and other scientific documents. Upon going through the different chapters, the readers should be able to critically search for relevant literature; to correctly define and execute a research topic or project; to correctly write a scientific document; to know the characteristics of the different parts of a MSc degree or PhD degree thesis and a scientific paper; to correctly interpret publishing ethically sensitive material; to understand problems about falsification, fabrication of data, plagiarism, and ranking of authors; and to prepare and present a good poster.

'The book provides a concise, informative, comprehensive, and current overview of key issues in the field of science communication, the background of science communication, its theoretical bases, and its links to science communication practice. Especially the link between theory / research and practice is very well developed in the book and in the individual chapters. I think that is valuable for both readers new to the field of science communication, but also for those who identify with only one of these sides ... it is indeed a comprehensive and concise overview, convincing in its aim to link theory, research, and practice and I will definitely use it for my lectures on science communication.' JCOM - Journal of Science Communication A concise, coherent and easily readable textbook about the field of science communication, connecting the practice of science communicators with theory. In the book, recent trends and shifts in the field resonate, such as the transition from telling about science to interacting with the public and the importance of science communication in health and environmental communication. The chapters have been written by experts in their disciplines, coming from philosophy of science and communication studies to health communication and science journalism. Cases from around the world illustrate science communication in practice. The book provides a broad, up-to-date and coherent introduction to science communication for both, students of science communication and related fields, as well as professionals. Related Link(s)

Comprehensive yet accessible, this key Handbook provides an up-to-date overview of the fast growing and increasingly important area of 'public communication of science and technology', from both research and practical perspectives. As well as introducing the main issues, arenas and professional perspectives involved, it presents the findings of earlier research and the conclusions previously drawn. Unlike most existing books on this topic, this unique volume couples an overview of the practical problems faced by practitioners with a thorough review of relevant literature and research. The practical Handbook format ensures it is a student-friendly resource, but its breadth of scope and impressive contributors means that it is also ideal for practitioners and professionals working in the field. Combining the contributions of different disciplines (media and journalism studies, sociology and history of science), the perspectives of different geographical and cultural contexts, and by selecting key contributions from appropriate and well-respected authors, this original text provides an interdisciplinary as well as a global approach to public communication of science and technology.

This book describes the development of the scientific article from its modest beginnings to the global phenomenon that it has become today. Their analysis of a large sample of texts in French, English, and German focuses on the changes in the style, organization, and argumentative structure of scientific communication over time. They also speculate on the future currency of the scientific article, as it enters the era of the World Wide Web. This book is an outstanding resource text in the rhetoric of science, and will stand as the definitive study on the topic.

The ability to communicate in print and person is essential to the life of a successful scientist. But since writing is often secondary in scientific education and teaching, there remains a significant need for guides that teach scientists how best to convey their research to general and professional audiences. The Craft of Scientific Communication will teach science students and scientists alike how to improve the clarity, cogency, and communicative power of their words and images. In this remarkable guide, Joseph E. Harmon and Alan G. Gross have combined their many years of experience in the art of science writing to analyze published examples of how the best scientists communicate. Organized topically with information on the structural elements and the style of scientific communications, each chapter draws on models of past successes and failures to show students and practitioners how

best to negotiate the world of print, online publication, and oral presentation.

This volume traces the modern critical and performance history of this play, one of Shakespeare's most-loved and most-performed comedies. The essay focus on such modern concerns as feminism, deconstruction, textual theory, and queer theory.

Effective Science Communication: A practical guide to surviving as a scientist is devoted to the variety of ways that scientists are expected to communicate in their day-to-day professional lives. It includes practical advice on how to publish your work in scientific journals, apply for grants, and effectively communicate your research to both scientific and non-scientific audiences. There are chapters devoted to constructing a digital footprint, dealing with the media, and influencing science policy. Guiding you throughout are a number of useful exercises that will help you to become a more effective communicator, providing a helping hand in your scientific journey to not only survive, but to prosper in the process.

First Published in 2017. Routledge is an imprint of Taylor and Francis, an Informa company.

Communicate Science Papers, Presentations, and Posters Effectively is a guidebook on science writing and communication that professors, students, and professionals in the STEM fields can use in a practical way. This book advocates a clear and concise writing and presenting style, enabling users to concentrate on content. The text is useful to both native and non-native English speakers, identifying best practices for preparing graphs and tables, and offering practical guidance for writing equations. It includes content on significant figures and error bars, and provides the reader with extensive practice material consisting of both exercises and solutions. Covers how to accurately and clearly exhibit results, ideas, and conclusions Identifies phrases common in scientific literature that should never be used Discusses the theory of presentation, including "before and after examples highlighting best practices Provides concrete, step-by-step examples on how to make camera ready graphs and tables

Here is the essential how-to guide for communicating scientific research and discoveries online, ideal for journalists, researchers, and public information officers looking to reach a wide lay audience. Drawing on the cumulative experience of twenty-seven of the greatest minds in scientific communication, this invaluable handbook targets the specific questions and concerns of the scientific community, offering help in a wide range of digital areas, including blogging, creating podcasts, tweeting, and more. With step-by-step guidance and one-stop expertise, this is the book every scientist, science writer, and practitioner needs to approach the Wild West of the Web with knowledge and confidence.

From climate to vaccination, stem-cell research to evolution, scientific work is often the subject of public controversies in which scientists and science communicators find themselves enmeshed. Especially with such hot-button topics, science communication plays vital roles. Gathering together the work of a multidisciplinary, international collection of scholars, the editors of Ethics and Practice in Science Communication present an enlightening dialogue involving these communities, one that articulates the often differing objectives and ethical responsibilities communicators face in bringing a range of scientific knowledge to the wider world. In three sections—how ethics matters, professional practice, and case studies—contributors to this volume explore the many complex questions surrounding the communication of scientific results to nonscientists. Has the science been shared clearly and accurately? Have questions of risk, uncertainty, and appropriate representation been adequately addressed? And, most fundamentally, what is the purpose of communicating science to the public: Is it to inform and empower? Or to persuade—to influence behavior and policy? By inspiring scientists and science communicators alike to think more deeply about their work, this book reaffirms that the integrity of the communication of science is vital to a healthy relationship between science and society today.

John Dalton's molecular structures. Scatter plots and geometric diagrams. Watson and Crick's double helix. The way in which scientists understand the world—and the key concepts that explain it—is undeniably bound up in not only words, but images. Moreover, from PowerPoint presentations to articles in academic journals, scientific communication routinely relies on the relationship between words and pictures. In Science from Sight to Insight, Alan G. Gross and Joseph E. Harmon present a short history of the scientific visual, and then formulate a theory about the interaction between the visual and textual. With great insight and admirable rigor, the authors argue that scientific meaning itself comes from the complex interplay between the verbal and the visual in the form of graphs, diagrams, maps, drawings, and photographs. The authors use a variety of tools to probe the nature of scientific images, from Heidegger's philosophy of science to Peirce's semiotics of visual communication. Their synthesis of these elements offers readers an examination of scientific visuals at a much deeper and more meaningful level than ever before.

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