

Contents

Acronyms and Abbreviations	ix
About Science and Engineering Indicators	xi
Overview	O-1
Introduction.....	O-3
S&T: The Global Picture	O-3
S&E Trends in the United States	O-13
Conclusion	O-22
Notes	O-23
Chapter 1. Elementary and Secondary Education	1-1
Highlights.....	1-5
Introduction.....	1-8
Student Learning in Mathematics and Science.....	1-8
Student Coursetaking in Mathematics and Science.....	1-23
Mathematics and Science Teachers	1-31
Information Technology in Education	1-42
Transition to Higher Education.....	1-48
Conclusions.....	1-51
Notes	1-52
Glossary	1-56
References.....	1-56
Chapter 2. Higher Education in Science and Engineering	2-1
Highlights.....	2-4
Introduction.....	2-7
Structure of U.S. Higher Education	2-7
Higher Education Enrollment in the United States.....	2-10
Higher Education Degrees	2-17
Global Higher Education in S&E	2-30
Conclusion	2-36
Notes	2-36
Glossary	2-37
References.....	2-37
Chapter 3. Science and Engineering Labor Force	3-1
Highlights.....	3-4
Introduction.....	3-5
U.S. S&E Labor Force Profile	3-5
Labor Market Conditions for Recent S&E Graduates	3-22
Age and Retirement	3-28
Global S&E Labor Force and the United States	3-32
Conclusion	3-39
Note.....	3-39
Glossary	3-39
References.....	3-39
Chapter 4. Research and Development: Funds and Technology Linkages	4-1
Highlights.....	4-5
Introduction.....	4-7
National R&D Trends.....	4-8
Location of R&D Performance	4-14
Business R&D.....	4-15
Federal R&D.....	4-19

Technology Linkages: Contract R&D, Public-Private Partnerships, and Industrial Alliances.....	4-31
International R&D Comparisons	4-38
R&D Investments by Multinational Corporations	4-56
Conclusion	4-62
Notes	4-62
Glossary	4-67
References.....	4-67
Chapter 5. Academic Research and Development.....	5-1
Highlights.....	5-5
Introduction.....	5-8
Financial Resources for Academic R&D.....	5-9
Doctoral Scientists and Engineers in Academia	5-22
Outputs of S&E Research: Articles and Patents	5-37
Conclusion	5-58
Notes	5-58
Glossary	5-61
References.....	5-62
Chapter 6. Industry, Technology, and the Global Marketplace.....	6-1
Highlights.....	6-4
Introduction.....	6-8
U.S. Technology in the Global Marketplace	6-9
U.S. Trade Balance in Technology Products.....	6-19
U.S. Royalties and Fees Generated From Intellectual Property	6-23
New High-Technology Exporters	6-24
Patented Inventions.....	6-28
Venture Capital and High-Technology Enterprise	6-36
Conclusion	6-41
Notes	6-42
Glossary	6-44
References.....	6-44
Chapter 7. Science and Technology: Public Attitudes and Understanding	7-1
Highlights.....	7-3
Introduction.....	7-5
Information Sources, Interest, and Perceived Knowledge.....	7-5
Public Knowledge About S&T	7-17
Public Attitudes About Science-Related Issues.....	7-22
Conclusion	7-39
Notes	7-39
Glossary	7-43
References.....	7-43
Chapter 8. State Indicators	8-1
Introduction.....	8-6
Elementary/Secondary Education.....	8-8
Higher Education	8-32
Workforce	8-46
Financial Research and Development Inputs.....	8-58
R&D Outputs	8-68
Science and Technology in the Economy.....	8-78
Index.....	I-1
List of Appendix Tables in Volume 2.....	A-1

Acronyms and Abbreviations

AAAS	American Association for the Advancement of Science	GSP	gross state product
ACS	American Community Survey	GSS	General Social Survey
AP	Advanced Placement	GUF	general university fund
ATP	Advanced Technology Program	HHS	U.S. Department of Health and Human Services
AUTM	Association of University Technology Managers	HS&B	High School and Beyond Study
BEA	U.S. Bureau of Economic Analysis	IB	International Baccalaureate
BLS	U.S. Bureau of Labor Statistics	ICT	information and communications technologies
CATI-MERIT	Cooperative Agreements and Technology Indicators database, Maastricht Economic Research Institute on Innovation and Technology	IOF	involuntary out of the field
CCD	Common Core of Data	IPR	intellectual property right
CDC	U.S. Centers for Disease Control and Prevention	IRI	Industrial Research Institute
CORE	Cooperative Research (database)	IRS	Internal Revenue Service
CPS	Current Population Survey	ISI	Institute for Scientific Information
CRADA	cooperative research and development agreement	ISIC	International Standard Industrial Classification
DHS	U.S. Department of Homeland Security	IT	information technology
DNA	deoxyribonucleic acid	MER	market exchange rate
DOC	U.S. Department of Commerce	MMR	measles, mumps, and rubella
DOD	U.S. Department of Defense	MNC	multinational corporation
DOE	U.S. Department of Energy	NAEP	National Assessment of Educational Progress
DOI	U.S. Department of the Interior	NAGB	National Assessment Governing Board
DVR	digital video recorder	NAICS	North American Industry Classification System
EDP	electronic data processing	NAS	National Academy of Sciences
ELS	Education Longitudinal Study	NASA	National Aeronautics and Space Administration
EPO	European Patent Office	NASF	net assignable square feet
EPSCoR	Experimental Program to Stimulate Competitive Research	NCES	National Center for Education Statistics
ESP	extrasensory perception	NCLB	No Child Left Behind Act of 2001
EU	European Union	NCRA	National Cooperative Research Act
FASB	Financial Accounting Standards Board	NCRPA	National Cooperative Research and Production Act
FDA	U.S. Food and Drug Administration	NELS	National Education Longitudinal Study
FDI	foreign direct investment	NIH	National Institutes of Health
FDIUS	Survey of Foreign Direct Investment in the United States	NIOEM	National Industry-Occupation Employment Matrix
FFRDC	federally funded research and development center	NIPA	national income and product account
FS&T	federal science and technology	NIST	National Institute for Standards and Technology
FY	fiscal year	NITRD	Networking and Information Technology Research and Development
G-7	Group of Seven	NNI	National Nanotechnology Initiative
G-8	Group of Eight	NRC	National Research Council
GATT	General Agreement on Tariffs and Trade	NS&E	natural sciences and engineering
GDP	gross domestic product	NSB	National Science Board
GED	General Educational Development	NSCG	National Survey of College Graduates
GM	genetically modified	NSF	National Science Foundation
GPA	grade point average	NTU	National Technological University

OECD	Organisation for Economic Co-operation and Development	SFAS	Statement of Financial Accounting Standards
OMB	U.S. Office of Management and Budget	SNA	System of National Accounts
PBS	Public Broadcasting Service	SRS	Division of Science Resources Statistics
PCT	Patent Cooperation Treaty	SSCI	Social Sciences Citation Index
PDA	personal data assistant	STEP	Science, Technology and Economic Policy Board
PhRMA	Pharmaceutical Research and Manufacturers of America	STTR	Small Business Technology Transfer Program
PISA	Programme for International Student Assessment	TA	teaching assistantship
PPP	purchasing power parity	TIMMS	Trends in International Math and Science Study
PRO	public research organization	UFO	unidentified flying object
PTO	U.S. Patent and Trademark Office	UNESCO	United Nations Educational, Scientific and Cultural Organization
PUMS	Public Use Microdata Sample	USDA	U.S. Department of Agriculture
R&D	research and development	USDIA	Survey of U.S. Direct Investment Abroad
R&E	research and experimentation	VCU	Virginia Commonwealth University
RA	research assistantship	WebCASPAR	Integrated Science and Engineering Resources Data System
S&E	science and engineering	YSD	years since highest degree
S&T	science and technology		
SBIR	Small Business Innovation Research		
SCI	Science Citation Index		
SESTAT	Scientists and Engineers Statistical Data System		