Cambridge University Press 978-0-521-87841-8 — Ethics and Science Adam Briggle , Carl Mitcham Table of Contents <u>More Information</u>

Contents

List of figures and tables	
Preface	
1 Introduction and overview	1
Setting the stage: the Manhattan Project	1
Relations between ethics and science	4
Responses: professional, industrial, governmental	10
Course of the argument	13
Extending reflection: scientific controversies and the Nobel Prize	19
Questions for research and discussion	21
Further reading about the cases	22
2 Ethical concepts and theories	23
Setting the stage: the miracle drug thalidomide	23
Distinctions and definitions	26
Ethics and science: a brief relational history	30
From moral knowledge to ethical reasoning	36
The role of theory	39
Virtue ethics	41
Consequentialism	46
Deontology	51
Strengths, weaknesses, and alternatives	57
Summary	61
Extending reflection: codes of conduct for computer scientists	
and software engineers	62
Questions for research and discussion	64
Further reading about the cases	65

Cambridge University Press 978-0-521-87841-8 — Ethics and Science Adam Briggle , Carl Mitcham Table of Contents <u>More Information</u>

viii Contents

3	Science and its norms	66
	Setting the stage: Galileo and the church	66
	Emergence of natural philosophy	69
	The social institutionalization of science	73
	Scientific methods and epistemological norms	76
	Social norms in science	78
	Summary	82
	Extending reflection: anthropologists and the military	83
	Questions for research and discussion	85
	Further reading about the cases	86
4	Research ethics I: responsible conduct	87
	Setting the stage: a cloning scandal	88
	From norms to realities	90
	Influential cases	94
	A spectrum of conduct	100
	The flow 1: anticipating research	103
	The flow 2: doing research	106
	The flow 3: disseminating research	112
	Research ethics in a global context	118
	Summary	120
	Extending reflection: Victor Ninov and Jan Hendrik Schön	121
	Questions for research and discussion	123
	Further reading about the cases	123
	Video and online resources for teaching about	
	research misconduct	124
5	Research ethics II: science involving humans	125
	Setting the stage: clinical trials in developing countries	125
	How clinical trials work	128
	How humans became research subjects	132
	From subjects to participants: free and informed consent	134
	The US case: autonomy, beneficence, and justice	140
	The flow of human participants research: anticipating and practicing	145
	The flow of human participants research: disseminating	150
	Summary	151
	Extending reflection: using immorally acquired data	151

CAMBRIDGE

Cambridge University Press 978-0-521-87841-8 — Ethics and Science Adam Briggle , Carl Mitcham Table of Contents <u>More Information</u>

Contents	ix

	Questions for research and discussion	154
	Further reading about the cases	155
6	Research ethics III: science involving animals	156
	Setting the stage: war over animal research	156
	Farms, zoos, pets, wildlife preserves, and laboratories	159
	Animal welfare and animal rights: a brief history	162
	The animals issue: an analysis	166
	Summary	170
	Extending reflection: Temple Grandin	170
	Questions for research and discussion	172
	Further reading about the cases	173
7	The science of ethics	174
	Setting the stage: sexual harassment among scientists	174
	What can science tell us about ethics?	176
	Evolutionary ethics	178
	Decision science	181
	Psychology of moral development	182
	The naturalistic fallacy	185
	Options for a science of ethics	186
	Why attempt a strong science of normative ethics?	190
	Methodological naturalism informing ethics: neuroscience	192
	Summary	193
	Extending reflection: space colonization	194
	Questions for research and discussion	195
	Further reading about the cases	196
8	Transition: from ethics to politics and policy	197
	Setting the stage: developing a course	197
	The goals of teaching and learning	199
	Science and ethics or ethics and science?	201
	For interdisciplinary ethics	203
	Effective education	204
	Ethics: from doing things right to doing the right things	205
	Extending reflection: Einstein on ethics and science	207
	Questions for research and discussion	209
	Further reading about the cases	209

Cambridge University Press 978-0-521-87841-8 — Ethics and Science Adam Briggle , Carl Mitcham Table of Contents <u>More Information</u>

x Contents

9	Science and politics I: policy for science	210
	Setting the stage: government funding of embryonic stem	
	cell research	210
	Science in context	212
	The social contract for science: the linear model	215
	Questioning the social contract: governing science	217
	Policies for science budgets	219
	Science outcomes	223
	R&D, the market, and well-being	225
	Scientists' responsibilities for knowledge and its consequences	228
	Distributing responsibility	230
	Summary	233
	Extending reflection: dual use and publishing a deadly blueprint	234
	Questions for research and discussion	235
	Further reading about the cases	236
10	Science and politics II: science for policy	237
	Setting the stage: climate change and an inconvenient heretic	237
	Science and decision-making	240
	The social contract for science revisited	245
	Questioning the social contract again: science governing	248
	Science in the military	254
	Science in the courtroom	256
	Science in the media	258
	Summary	261
	Extending reflection: premature science? Predicting earthquakes	
	and linking autism with vaccinations	263
	Questions for research and discussion	265
	Further reading about the cases	266
11	Science and ideational culture	268
	Setting the stage: the Templeton Foundation	268
	Science and personal experience	270
	Science and culture	273
	Independence: separating science from culture	275
	Conflict: science and culture in opposition	276
	Dialogue: science and culture in conversation	281
	Integration: bringing science and culture together	283

CAMBRIDGE

Cambridge University Press 978-0-521-87841-8 — Ethics and Science Adam Briggle , Carl Mitcham Table of Contents <u>More Information</u>

Contents	xi
----------	----

Summary	286
Extending reflection: intelligent design in public schools	286
Questions for research and discussion	288
Further reading about the cases	289
12 Science applied: ethics and engineering	290
Setting the stage: the Challenger and Columbia disasters	290
Overview, definitions, and contrasts	293
A history of ideals in engineering ethics	296
Perspectives from different countries	300
Confidence and doubt in engineering	306
Toward a duty plus respicere in engineering – and in science	307
Summary	312
Extending reflection: sustainability and geoengineering	313
Questions for research and discussion	317
Further reading about the cases	318
Epilogue: Looking back, leaning forward: the moral character of scientists	319
Appendix: Ethics codes	324
Bibliography	328
Index	347