



Public Health 101

FOURTH EDITION

Improving Community Health

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*To Nancy Alfred Persily, whose enthusiasm for teaching
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Brief Contents

Acknowledgments	xiii
Preface: What Is <i>Public Health 101</i>: Improving Community Health All About?	xv
About the Authors	xvii

SECTION 1	Principles of Population Health	1
	CHAPTER 1	Public Health: The Population Health Approach 3
	CHAPTER 2	Evidence-Based Public Health 29
SECTION 1	Cases and Discussion Questions	53
SECTION 2	Tools of Public Health	61
	CHAPTER 3	Public Health Data and Communications . . . 63
	CHAPTER 4	Social and Behavioral Sciences and Public Health 85
	CHAPTER 5	Health Law, Policy, and Ethics 103
SECTION 2	Cases and Discussion Questions	121
SECTION 3	Preventing Disease, Morbidity, and Mortality	129
	CHAPTER 6	Noncommunicable Diseases 133
	CHAPTER 7	Communicable Diseases 149
	CHAPTER 8	Environmental Health and Safety 171
SECTION 3	Cases and Discussion Questions	191

SECTION 4	Health Professionals, Healthcare Institutions, and Healthcare Systems	201
CHAPTER 9	Health Professionals and the Health Workforce.....	203
CHAPTER 10	Healthcare Institutions.....	221
CHAPTER 11	Health Insurance and Healthcare Systems	237
SECTION 4	Cases and Discussion Questions	253
SECTION 5	Public Health Institutions and Systems	261
CHAPTER 12	Public Health Institutions	263
CHAPTER 13	Food, Drugs, and Vaccines as Public Health Issues	289
CHAPTER 14	Systems Thinking: From Single Solutions to One Health.....	307
SECTION 5	Cases and Discussion Questions	329
	Glossary	339
	Index	351



Contents

Acknowledgments	xiii
Preface: What Is Public Health 101: Improving Community Health All About?...	xv
About the Authors	xvii

SECTION 1 Principles of Population Health 1

CHAPTER 1 Public Health: The Population Health Approach 3

What Do We Mean by “Public Health”?	4
How Has the Approach of Public Health Changed over Time?	6
What Is Meant by “Population Health”?	8
What Are the Implications of Each of the Four Components of Public Health?	10
Should We Focus on Everyone or on Vulnerable Groups?	11
What Do We Mean by Population Health’s Focus on the Life Cycle?	12
What Are the Approaches Available to Protect and Promote Health?	14
What Factors Determine the Occurrence of Disease, Disability, and Death?	15
What Are Social Determinants of Health?	16
What Are We Trying to Achieve by Addressing the Social Determinants of Health?	21
What Changes in Populations over Time Can Affect Health?	21

CHAPTER 2 Evidence-Based Public Health 29

How Can We Describe a Health Problem?	30
How Can Understanding the Distribution of Disease Help Us Generate Ideas or Hypotheses About the Cause Of Disease? ..	32
How Do Epidemiologists Investigate Whether There Is Another Explanation for the Difference or Changes in the Distribution of Disease?	33

What Is the Implication of a Group Association?	34
Etiology: How Do We Establish Contributory Cause?	35
What Can We Do If We Cannot Demonstrate All Three Requirements to Definitively Establish Contributory Cause?	37
What Does Contributory Cause Imply?	38
Recommendations: What Works to Reduce the Health Impact?	40
Implementation: How Do We Get the Job Done?	43
Evaluation: How Do We Evaluate Results? ...	46

SECTION 1 Cases and Discussion Questions 53

HIV/AIDS Determinants and Control of the Epidemic	53
The Aging Society	54
Smoking and Adolescents—The Continuing Problem	55
Reye’s Syndrome: A Public Health Success Story	56
Sudden Infant Death Syndrome (SIDS)	56
Folic Acid and the Prevention of Spina Bifida and other Neural Tube Defects	57

SECTION 2 Tools of Public Health 61

CHAPTER 3 Public Health Data and Communications 63

What Is the Scope of Health Communications?	64
Where Do Public Health Data Come From?	64
How Is Public Health Information Compiled to Measure the Health of a Population?	66

How Can We Evaluate the Quality of Health Information?	69
How Can We Effectively Display Information?	70
What Factors Affect How We Perceive Public Health Information?	70
What Types of Information Need to Be Combined to Make Health Decisions?	74
What Other Data Need to Be Included in Decision-Making?	78
How Do We Utilize Information to Make Health Decisions?	78
How Can We Use Health Information to Make Healthcare Decisions?	80

CHAPTER 4 Social and Behavioral Sciences and Public Health85

How Is Public Health Related to the Social and Behavioral Sciences?	86
How Are Social Systems Related to Health?	86
How Do Socioeconomic Status, Culture, and Religion Affect Health?	87
Can Individual Health Behavior Be Changed?	91
Why Are Some Individual Health Behaviors Easier to Change Than Others?	92
How Can Individual Behavior Be Changed?	93
How Can Group and Population Interventions Complement Individual Interventions?	95
What Are Other Widely Used Theories of Behavioral Change?	95
What Are Some Effective Principles for Influencing Individual Behaviors?	96
How Can Marketing Principles Be Used to Change Behavior?	96
What Role Can Education Play in Vaccine Acceptance?	98
What Can Be Done to Achieve Vaccine Acceptance When Education Alone Is Not Effective?	98
How Can Efforts to Change Individual Behavior Be Evaluated?	99

CHAPTER 5 Health Law, Policy, and Ethics 103

What Is the Scope of Health Law, Policy, and Ethics?	104
What Legal Principles Underlie Public Health and Health Care?	105
What Do We Mean by “Health Policy”?	107

How Are Health Policy Priorities Established?	107
How Do Philosophies Toward the Role of Government Affect Health Policies?	108
Is There a Right to Health Care?	110
How Does Public Health Attempt to Balance the Rights of Individuals and the Needs of Society?	111
How Can Public Health Influence Health Law and Policy?	113
What Bioethical Principles Are Used to Address Public Health Issues?	113
How Can Bioethical Principles Be Applied to Protecting Individuals Who Participate in Research?	114
What Can Be Done to Respond to the Threat of Pandemic Diseases?	117

SECTION 2 Cases and Discussion Questions 121

Don’s Diabetes	121
A New Disease Called SADS—A Decision Analysis	122
José and Jorge—Identical Twins Without Identical Lives	123
The Obesity Epidemic in the United States—The Tip of an Iceberg	123
Changing Behavior—Cigarette Smoking	125
The New Era of E-Cigarettes	125
The Elderly Driver	126
Opioid Epidemics: A Recurring Crisis	127

SECTION 3 Preventing Disease, Morbidity, and Mortality 129

CHAPTER 6 Noncommunicable Diseases 133

What Is the Burden of Noncommunicable Disease?	134
How Can Screening for Disease Address the Burden of Noncommunicable Diseases?	135
How Can Identification and Treatment of Multiple Risk Factors Be Used to Address the Burden of Noncommunicable Disease?	140

How Can Cost-Effective Interventions Help Us Address the Burden of Noncommunicable Diseases?	142
Can Genetic Testing Help Predict Disease and Disease Outcomes and Allow More Personalized Medicine?	143
How Can We Combine Healthcare and Public Health Interventions to Increase Net-Effectiveness?	144
How Can We Utilize Research When Highly Effective Interventions Do Not Exist?	146

CHAPTER 7 Communicable Diseases 149

How Have Vaccinations Affected the Burden of Communicable Disease?	150
How Have Antibiotics Reduced the Burden of Communicable Diseases?	152
What Is the Continuing Burden of Communicable Diseases?	154
How Do We Establish That a Potential Pathogen Is the Etiology of a Communicable Disease?	155
What Are Potential Routes of Transmission of Communicable Diseases?	156
What Measurements Help Us Predict the Extent and Speed of Transmission?	157
What Else Matters Besides R_0 in Determining the Course of an Epidemic or Pandemic?	158
What Tools Are Available to Public Health to Address Communicable Disease?	158
How Can Barriers Against Disease Be Used to Address the Burden of Communicable Diseases?	158
How Can Screening and Contact Tracing Be Used to Address the Burden of Communicable Disease?	159
How Can Immunizations Be Used to Address the Burden of Communicable Disease?	159
How Can Antibiotic or Antiviral Treatment Help to Address the Burden of Communicable Disease?	161
How Can Public Health Strategies Be Used to Eliminate or Eradicate a Communicable Disease?	161
What Are the Steps in a Pandemic Prevention Framework?	163

What Are the Big Three Ongoing Communicable Diseases Worldwide?	165
What Can Be Done to Address HIV/AIDS?	165
What Is the History and the Current Impact of TB?	167
Why Is Malaria So Important Globally and What Is Being Done to Reduce Its Death Toll?	168

CHAPTER 8 Environmental Health and Safety 171

What Is Meant by “Environment”?	172
What Is the Impact of the Environment on Health and Which Environmental Hazard Currently Produces the Greatest Loss of Human Life?	173
What Is the Impact of Occupational Exposures and Injuries?	174
How Do We Interact with Our Physical Environment?	175
How Does Risk Assessment Address the Impacts of the Physical Environment?	176
What Is a Public Health Assessment?	177
What Is an Ecological Risk Assessment?	179
What Is an Interaction Analysis Approach to Environmental Diseases?	180
What Are the Health Impacts of the Built Environment?	183
What Do We Mean by “Intentional and Unintentional Injuries”?	185
How Can Environmental Health and Safety Improve Health Protection?	185
What Is an All-Hazards Approach to Health Protection?	185
Reducing Head Injuries in Children and Adolescents	186

SECTION 3 Cases and Discussion Questions 191

High Blood Pressure: A Public Health and Healthcare Success	191
Testing and Screening	192
H. pylori and Peptic Ulcers	193
What to Do About Lyme Disease?	194
Sharma’s Village	194
Type 2 Diabetes—An Epidemic Disease	195

Legal Drugs That Kill—Death from Prescription Drug Overdoses.....	196
Athletic Head Injuries: It Happens Every Day.....	197
WHO Declares “Monkeypox” (mpox) a Public Health Emergency of International Concern	197

SECTION 4 **Health Professionals, Healthcare Institutions, and Healthcare Systems** **201**

CHAPTER 9 Health Professionals and the Health Workforce203

What Do We Mean by a “Health Professional”?	204
How Do Education, Training, and Continuing Education Serve to Define Health Professions?	204
What Are the Educational Options Within Public Health?	205
What Is the Education and Training Process for Physicians?	208
What Is the Education and Training Process for Nurses?	212
What Roles Can Physicians, Nurses, and Other Clinical Health Professions Play in Public Health?	213
What Roles Can Pharmacists Play in Public Health?	214
What Is Meant by “Primary, Secondary, and Tertiary Care”?	214
How Are Clinical Health Professionals Rewarded and Compensated for Their Services?	216
How Can We Ensure the System Has the Right Number of Healthcare Professionals?	217

CHAPTER 10 Healthcare Institutions..... 221

What Institutions Make Up the Healthcare System?	222
What Types of Inpatient Facilities Exist in the United States?	222

What Types of Outpatient Facilities Exist in the United States?	224
What Do We Mean by the “Quality of Healthcare Services”?	225
How Can Health Care Be Coordinated Among the Multiple Institutions That Provide Healthcare Services?	226
What Types of Coordination of Care Are Needed and What Purposes Do They Serve?	227
What Types of Healthcare Delivery Systems Are Being Developed and How Can They Help Ensure Coordination of Health Care?	228
How Can Electronic Health Records Be Used to Facilitate Coordination of Care and Improve Quality?	230
How Is Technology Changing the Way Healthcare Systems Deliver Care?	231
What Mechanisms Are Being Used to Monitor and Ensure the Quality of Health Care in the United States?	232

CHAPTER 11 Health Insurance and Healthcare Systems237

How Much Money Does the United States Spend on Health Care?	238
What Types of Government-Supported Health Insurance Are Available?	239
What Types of Employment-Based Health Insurance Are Available?	241
What Mechanism Is Available to Obtain Insurance for Those Not Otherwise Eligible for Health Insurance?	242
What Are the Extent and Consequences of Being Uninsured and Underinsured in the United States?	242
Are There Other Programs Available for Those Who Are Disabled or Injured on the Job?	244
How Does the United States’ Health System Compare with Other Developed Countries?	244
How Can We Compare the Healthcare Systems in Canada and the United Kingdom to the United States?	245
What Conclusions Can We Reach About the Operation and Performance of Healthcare Systems in the United States, Canada, and the United Kingdom?	247

Why Does the United States Spend So Much on Health Care?	248
What Is Needed to Enable Competition to Reduce Healthcare Costs?	249
How Can Population Health Management Organizations Aim to Reduce Costs While Increasing Quality?	250

SECTION 4 **Cases and Discussion Questions** **253**

When Nursing Meets Medicine.	253
Jack and Continuity of Care	254
Donna's Doctor—To Err Is Human	255
Health Care in the United States—For Better or Worse?	256
Excess Costs—How Much Can Be Saved?	256
Navigating the Health System	257
There's Never Enough Time in Medical Practice	258

SECTION 5 **Public Health Institutions and Systems** **261**

CHAPTER 12 Public Health Institutions263

What Are the Goals and Roles of Governmental Public Health Agencies? . . .	264
What Are the 10 Essential Public Health Services?	265
What Are the Roles of Local and State Public Health Agencies?	270
Is There a Process of Accreditation of Health Departments?	272
What Are the Roles of Federal Public Health Agencies?	273
How Can Public Health Agencies Work Together to Respond to an Outbreak of Disease?	276
What Are the Limitations of the U.S. Public Health System and What Can Be Done to Improve the System?	277
What Are the Roles of Global Health Organizations and Agencies?	279

How Can Public Health Agencies Worldwide Work Together?	279
What Nonhealth Government Agencies Are Involved in Health Issues?	282
What Roles Do Nongovernmental Organizations Play in Public Health?	283
How Can Public Health Take the Lead in Mobilizing Community, National, and Global Partnerships to Identify and Solve Health Problems?	284

CHAPTER 13 Food, Drugs, and Vaccines as Public Health Issues289

What Are Important Milestones in the History of the U.S. Food and Drug Administration?	290
What Ways Can Food Affect Health and Disease?	291
How Important Is Foodborne Communicable Disease as a Cause of Morbidity and Mortality?	295
What Is Being Done to Prevent Foodborne Diseases?	295
In the United States, What Other Programs Aim to Prevent Food-Related Disease and Disability?	295
Why Is Drug Safety Considered an Important 21st Century Public Health Issue?	296
What Do We Mean by "Preclinical Research" on Drugs?	297
What Is Phase 1?	297
What Are Phases 2 and 3?	298
What Are the Implications of Approval of a Drug?	300
How Are Adverse Effects of a Drug Monitored in Phase 4, After FDA Approval?	301
What Else Can Be Done to Improve Drug Safety?	301
Do All FDA-Regulated Products Receive the Same Effectiveness and Safety Assessment as Prescription and Nonprescription Drugs?	303
How Does Regulation of Vaccines Differ from Regulation of Drugs?	303
What Other Products Does the FDA Regulate?	305

**CHAPTER 14 Systems Thinking:
From Single Solutions
to One Health.307**

What Makes Systems Thinking Different? . . .	308
What Is a System?	308
What Are the Initial Steps in Systems Analysis?	309
What Additional Steps Are Needed to Complete a Systems Analysis?	310
How Can We Use a Systems Analysis to Better Understand a Problem Such as Coronary Artery Disease?	311
How Can We Use Systems Diagrams to Display the Workings of a System?	313
How Can We Apply Systems Thinking to Population Health Issues?	317
How Can Systems Thinking Help Us Incorporate Interactions Between Factors to Better Understand the Etiology of Disease?	317
How Can Systems Thinking Help Take into Account the Interactions Between Diseases?	317
How Can Systems Thinking Help Identify Bottlenecks and Leverage Points That Can Be Used to Improve Population Health?	318
How Can Systems Thinking Help Us Develop Strategies for Multiple Simultaneous Interventions?	318
How Can Systems Thinking Help Us Look at Processes as a Whole to Better Plan Interventions?	319

What Are Community Health Assessment and Health Improvement Plans?	320
What Is Meant by One Health?	321
What Is the One Health Initiative?	321
What Are Key Microbiological Changes That Impact Health and Disease?	322
What Are Key Human Population Changes That Impact Health and Disease?	323
What Are Some Key Ecosystem Changes That Impact Health and Disease?	323

**SECTION 5 Cases and
Discussion
Questions 329**

Public Health Departments—Getting the Lead Out	329
Hurricane Karl and the Public Health Success in Old Orleans.	329
Lung Cancer: Old Disease, New Approaches. .	330
Restorital—How Do We Establish Safety? . .	332
West Nile Virus: What Should We Do?	333
Influenza in Middleburg and Far Beyond— It Takes a National Plan	334
Antibiotic Resistance: It's With Us for the Long Run.	335
Josephine and the Patient Safety Movement	336

Glossary.	339
Index	351



Acknowledgments

Public Health 101: Improving Community Health, Fourth Edition is the culmination of over 25 years of effort aimed at introducing public health to undergraduates. The effort originated with the teaching of an introductory course in public health in 1998 at the then-newly created George Washington University School of Public Health and Health Services. The new course, organized by associate dean Nancy Alfred Persily, inspired efforts to teach and to learn from a new generation. The approach was designed as part of a liberal arts education, stimulating the movement that came to be called the Educated Citizen and Public Health.

Efforts to think through the content of an introductory course in public health have involved a large number of people throughout the United States. Public health, arts and sciences, and clinical educators all participated in the 2006 Consensus Conference on Undergraduate Public Health Education, which put forward the framework for an introductory overview course on public health upon which *Public Health 101* is based. Among those who led this effort is Susan Albertine, whose insights into the relationship between public health and liberal education formed the basis for much of the Educated Citizen and Public Health movement.

I have taught *Public Health 101* since 2002, which has provided me with an opportunity to teach and to learn from over 1000 undergraduate students at The George Washington University. Their feedback and input has been central to writing and rewriting this book. I would also like to thank Alan Greenberg and Heather Young, the former chair and current vice-chair of the Department of Epidemiology at The George Washington University Milken Institute School

of Public Health, for their support of my efforts to expand the audience for undergraduate public health.

I am pleased that Brenda Kirkwood has again joined me as a co-author. I first had the opportunity to work with Brenda while she was a DrPH student at The George Washington University. Dr. Kirkwood has made extraordinary contributions to *Public Health 101*. Her insights and careful reviews and dedication to getting the details right have been key to the quality of this and previous editions. Brenda is truly exceptional and a pleasure to work with, as will be confirmed by all who work with her.

Mike Brown, formerly responsible for public health and health administration publications for Jones & Bartlett Learning, made special contributions to the development of *Public Health 101* and the *Essential Public Health* series as a whole. His vision helped craft the series, and his publishing expertise made it happen. Sophie Teague and the production, marketing, and editorial staff of Jones & Bartlett Learning deserve special recognition. Their commitment to this book and the entire *Essential Public Health* series has gone well beyond the expectations of their jobs.

Last, but by no means least, is my wife, Linda Riegelman, who encouraged this book and the *Essential Public Health* series from the beginning. She saw the need to reach out to students and make real the roles that public health plays in their everyday lives.

Confronting the challenge of putting together *Public Health 101* has been one of the great joys of my professional life. I hope it will bring both joy and challenge to you as you enter into the important and engaging world of public health.

Richard Riegelman, MD, MPH, PhD



Preface: What Is *Public Health 101: Improving Community Health* All About?

We can think of public health as “all we do together to promote and preserve health and prevent disease, disability, and death.” Public health is more than a profession; it is a way of thinking. *Public Health 101: Improving Community Health* introduces you to the profession and also the way of thinking that we will call population health. Population health is an important way of looking at the world, whether you are going into public health as a profession, a clinically oriented health profession, business, law, international affairs, or a range of other professions.

Population health is also a key way of thinking, which prepares you for the challenges of citizenship in a democracy. Many of the issues that come before us as a society stem from or benefit from a population health perspective. Whether we are dealing with pandemic prevention, AIDS, the impact of aging, climate change, or the costs of health care, the population perspective can help us frame the issues and analyze the options to intervene. Population health requires an evidence-based approach to collecting and using the facts to develop and implement approaches to improve community health.

In addition, the population perspective leads us to look broadly at the way issues intertwine and interact with each other. We call this “systems thinking.” In population health, systems thinking is taking center stage as we increasingly struggle with complex problems that require us to look beyond the traditional boundaries of health and disease and the traditional lines between the roles of the health professions.

Until the 21st century, public health was considered a discipline taught only at the graduate level. Today, undergraduate public health is booming at

4-year colleges and is beginning to take hold at community colleges as well. There are now as many or more students graduating with a bachelor's degree in public health each year than an MPH degree. Its roots in general and liberal education go back to the 1980s, when David Fraser, the president of Swarthmore College and an epidemiologist who led the investigation of Legionnaires' disease, wrote a now classic article called “Epidemiology as a Liberal Art.”¹

In 2003, the Institute of Medicine of the National Academy of Sciences recommended that “all undergraduates should have access to education in public health.”² That recommendation encouraged the development of the Educated Citizen and Public Health initiative, a collaboration of undergraduate educators and public health educators to define and stimulate public health curricula for all undergraduates. *Public Health 101* was written to implement the recommendations that came out of this initiative and continues to form the basis for undergraduate education in public health.

This fourth edition of *Public Health 101* has been thoroughly updated and expanded. Each chapter includes new material designed to expand your understanding of public health. From COVID-19 to the continuing opioid epidemic, from new vaccination technology to effective public health communications, *Public Health 101* aims to make public health relevant to today's students and today's world. Each of the five sections includes one or more new case studies challenging you to apply what you have learned.

The fourth edition takes a comprehensive look at the COVID-19 pandemic in historical perspective, as an era in its own right with a lasting impact on public health, health care, and society as a whole.

The accompanying Navigate Advantage Access and eBook contain five interactive case studies that provide an overview of the basic clinical, virological, epidemiological, and testing concepts needed to understand COVID-19 as well as a framework for pandemic prevention and control. The final case study, Pandemic 2030, highlights how future pandemics can be prevented or controlled using what we have learned from COVID-19. COVID-19 is also integrated into the text, including chapters on health communications, health policy, and communicable diseases.

Public Health 101: Improving Community Health will not try to overload your mind with facts. It is about providing you with frameworks for thinking, and applying these frameworks to real situations and thought-provoking scenarios. Each chapter begins and ends with vignettes designed to show you the types of situations you will confront in public health.

After each section, there are case studies that relate to one or more chapters in the section. They provide realistic, engaging exercises, and open-ended questions to help you think through the application of the key concepts presented in each section.

Hopefully, you will come away from reading *Public Health 101* with an appreciation of how the health of the public is influenced by and can be improved by efforts directed at the population level, as well as at the individual level. Let us begin in Chapter 1 by exploring the ways that public health affects everyone's daily life.

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About the Authors

Richard Riegelman, MD, MPH, PhD, is professor of epidemiology, medicine, and health policy, and founding dean of The George Washington University Milken Institute School of Public Health. His education includes an MD from the University of Wisconsin, plus an MPH and PhD in epidemiology from The Johns Hopkins University. Dr. Riegelman practiced primary care internal medicine for over 20 years.

Dr. Riegelman has over 80 publications, including seven books for students and practitioners of medicine and public health. He is editor of the Jones & Bartlett Learning *Essential Public Health* series. The series provides books and ancillary materials for the full spectrum of curricula for undergraduate public health education.

Dr. Riegelman has spearheaded efforts to fulfill the Institute of Medicine's recommendation that "all undergraduates should have access to education in public health." He continues to work with public health and undergraduate education associations to integrate public health into the mainstream of undergraduate education at 2-year as well as 4-year colleges and universities. Richard Riegelman teaches undergraduate and graduate public health courses, which include Public Health 101 and Epidemiology 101.

Brenda Kirkwood, MPH, DrPH, is clinical associate professor and academic affairs administrator at the School of Public Health, University at Albany, State University of New York. Dr. Kirkwood has experience in higher education spanning public and private institutions on the associate, baccalaureate, and graduate levels, including development and teaching of undergraduate and graduate public health courses, development and management of public health academic programs, student advisement and mentorship, and contributing to public health education research. Prior to her career in higher education, Dr. Kirkwood held positions within the New York State Department of Health. She received a BS from Ithaca College; MPH from the University at Albany, State University of New York; and DrPH from The George Washington University.

Dr. Kirkwood has been actively involved in national efforts to expand public health education and strengthen the public health workforce. Her numerous publications and presentations have focused on the roles of, and opportunities for, public health education in 2-year and 4-year colleges and universities as well as on the graduate level.

