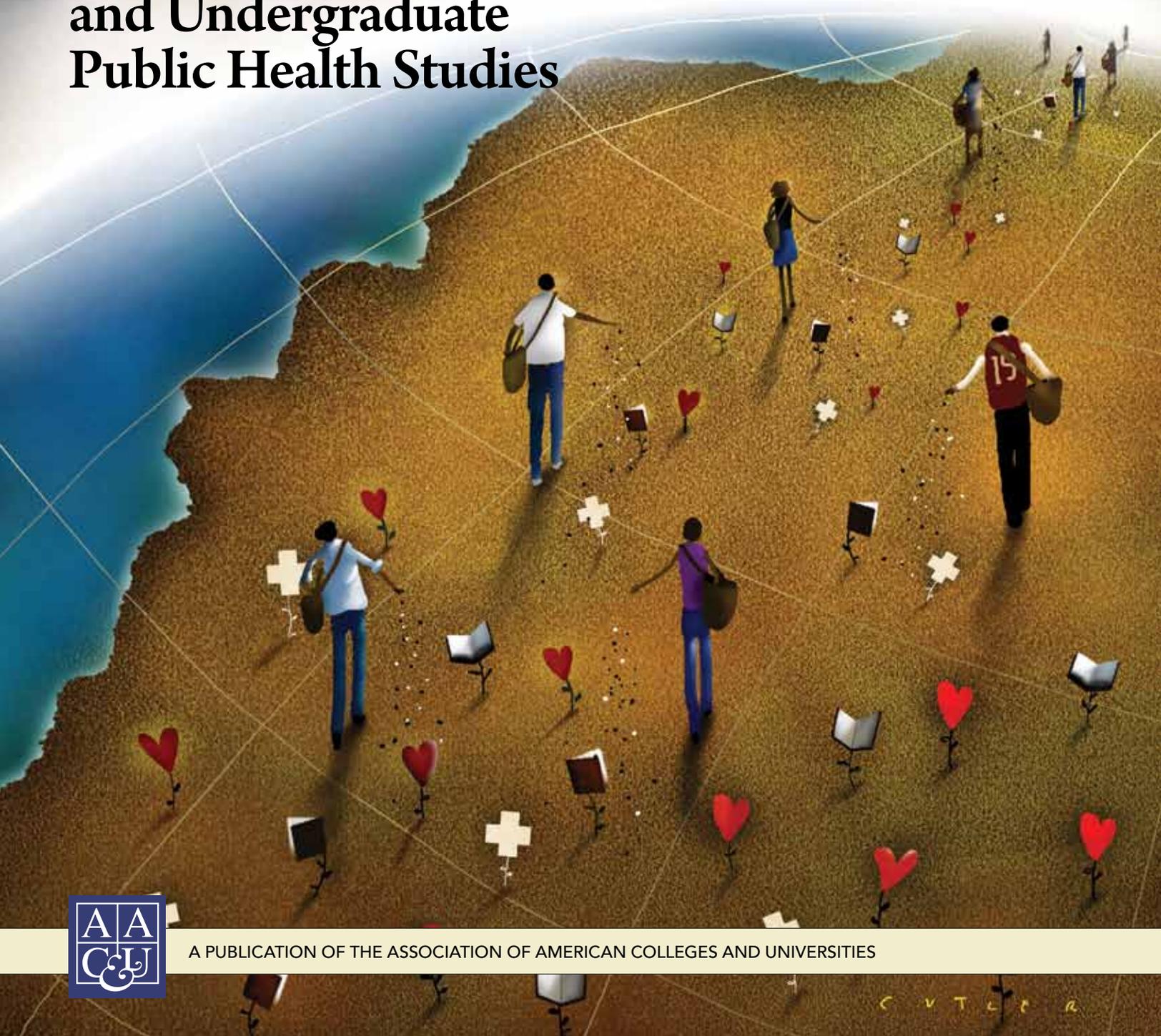


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EMERGING TRENDS AND KEY DEBATES IN UNDERGRADUATE EDUCATION

Liberal Education and Undergraduate Public Health Studies



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C V T L R



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IN UNDERGRADUATE EDUCATION

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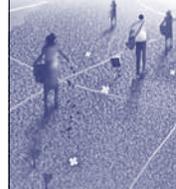
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The work of public health has but one goal: to diminish human suffering. A pragmatic field of inquiry and endeavor, public health organizes ideas and ideals about human health and well-being through action for the world. The field is fundamentally concerned with human and environmental interdependence and thus with sustainability.

As the Association of American Colleges and Universities (AAC&U) embarked in collaboration with other organizations to advance the study of public health across and within undergraduate disciplines, we discovered just how powerful a concept the health of global humanity has become in our era. We see activity that may signal the formation of a new inter- or multidisciplinary field of study. The subject of public health exercises an undeniable attraction—for students, staff, faculty, and communities.

As a field of practice and, eventually, a profession, public health arose with the modern social sciences in the nineteenth century. It also appeared in narrative, in a story of a neighborhood in London in 1854. In an early moment of epidemiological discovery, John Snow concluded that waterborne cholera would kill fewer people if the neighborhood would stop drinking from the contaminated public well. He removed the pump handle; the outbreak declined. The kind of evidence-based thinking that led to this act of prevention is rooted in the same ground as nineteenth-century liberal education, as it was indeed then called. Public health study developed within the same fertile ground as the fields that became the twentieth-century arts and sciences—at the center of undergraduate curricula before the more

recent rise of professional fields. In 1920, Charles Winslow defined public health as “the science and art of preventing disease, prolonging life and promoting physical health and efficacy through organized community efforts for the sanitation of the environment . . . and the development of social machinery which will ensure every individual in the community a standard of living adequate for the maintenance of health . . . to enable every citizen to realize his or her birthright and longevity” (Winslow 1920). In 1987, David Fraser, a physician, epidemiologist, and then president of Swarthmore College, published an influential article in the *New England Journal of Medicine* titled “Epidemiology as a Liberal Art” (Fraser 1987).

In the twentieth century, building on these foundations, public health study developed primarily as a graduate/professional field. Study of public health has long appeared in undergraduate curricula in nursing and undergraduate health studies, including environmental health. A number of accredited graduate schools and programs in public health also offer degree programs for undergraduates. Not until recently, however, did public health begin to appear in courses, curricula, cocurricula, and general education across a broad spectrum of undergraduate programs. Because of this complicated history, we understand the recent appearance of public health programs across undergraduate study, including the liberal arts, to be continuous rather than new.

In partnership with the Association of Schools of Public Health (ASPH) and the Association for Prevention Teaching and Research (APTR), AAC&U has advocated for undergraduate public health

A Dedication to Nancy Alfred Persily

This issue of *Peer Review* is dedicated to the memory of Nancy Alfred Persily. Nancy’s vision of undergraduate public health study brought life to our work. Nancy loved to share with undergraduates the intellectual stimulation, relevance, and excitement of public health as a way of thinking and living. Nancy is, we believe, the only person to have founded two undergraduate public health programs, one at the George Washington University School of Public Health and Health Services and the other at the University of Albany School of Public Health. In the mid-1990s, Nancy began to devote her enormous creative energy to this work—when the field was unknown to most undergraduates and, for that matter, to most educated Americans. By the late 1990s, she was developing and teaching what today we’d call Public Health 101, an integrative course that embraces the humanities and social sciences. Students rushed to register and blocked the hallway outside her office so that they could discuss the course and their own futures. To Nancy, it was a student-driven movement. Her humility in “following to lead” through learning has moved many of us to join this civically engaged and socially responsible new work.

Susan Albertine
Richard Riegelman



education as a sound example of a practical liberal education—one that develops students' capability to understand and take action to solve complex, unscripted, real-world problems. Joining a cooperative effort with undergraduate arts and sciences institutions and health professions educational organizations, AAC&U stepped forward to lead an initiative called the Educated Citizen and Public Health (ECPH). The initiative intends to foster curricular and cocurricular program development for undergraduates across all institutional types and to frame this work within liberal education. It simultaneously aims to fulfill the Institute of Medicine's recommendation that all undergraduates should have access to education in public health. Asking "Who will keep the public healthy?" the Institute of Medicine called in 2003 for an educated citizenry capable of responding to the world's escalating health challenges (Gebbie et al. 2003). ECPH thus intends to bring integrative study of public health to all four-year and two-year undergraduate institutions, to foster interdisciplinary and interprofessional collaboration, and to link to initiatives that address human health and environmental sustainability.

As we launched this initiative, we sought to make evident how the cross-disciplinary and applied work in public health aligns with the Liberal Education and America's Promise (LEAP) essential learning outcomes and the high-impact practices most likely to get students to achieve those outcomes. Understanding this initiative within the LEAP campaign, we hope to follow and guide undergraduate education in public health through the current period of transition and to raise the level of college student achievement for all students to meet the social, scientific, and economic demands of a globally interdependent world.

We have drawn on generous help extended by graduate programs in public health and health professions education,

including nursing. As the initiative matures, we find evidence, once again, that AAC&U member campuses are taking the lead in the development of new curricula—pushing thinking and actions across higher education in new directions. This new work is emerging as the health professions have begun to emphasize prevention of illness as a model for learning—moving beyond models founded on treatment of disease. As evidence-based practice and prevention have begun to reshape health professional

education, partnership with undergraduate liberal education is a welcome and logical next step.

— SUSAN ALBERTINE

REFERENCES

- Fraser, D. W. 1987. Epidemiology as a liberal art. *The New England Journal of Medicine* 316 (6): 309–14.
- Gebbie, K., L. Rosenstock, and L. M. Hernandez. 2003. *Who will keep the public healthy? Educating public health professionals for the 21st century*. Washington, DC: National Academics Press.
- Winslow, C. E. A. 1920. The untilled field of public health. *Modern Medicine* 2: 183–191.

The Educated Citizen and Public Health Supporters and Resources

The Educated Citizen and Public Health initiative has been made possible in part by support from the Josiah C. Macy, Jr., Foundation, the Council of Colleges of Arts and Sciences (CCAS), the Centers for Disease Control and Prevention (CDC), the Association of Schools of Public Health (ASPH), and the Association for Prevention Teaching and Research (APTR). The American Public Health Association (APHA) has participated and has urged its field affiliates to support the effort.

Below is a list of key resources related to the Educated Citizen and Public Health initiative. For more information about the initiative and for further resource suggestions, see www.aacu.org/public_health/index.cfm.

- The 2008 APTR/AAC&U publication, *Recommendations for Undergraduate Public Health Education* by Richard K. Riegelman and Susan Albertine can be found on the two publishers' Web sites at www.aptrweb.org/resources/pdfs/Recommendations.pdf and www.aacu.org/public_health/curriculumguide.cfm.
- The 2007 *Liberal Education* article, "Back to the Pump Handle: Public Health and the Future of Undergraduate Education" by Susan Albertine, Nancy A. Persily, and Richard K. Riegelman, can be found at www.aacu.org/liberaleducation/le-fa07/le_fa07_perspectives1.cfm.
- The 2007 *Peer Review* article, "Intentionality and Integration in Undergraduate Global Public Health Education" by Ruth G. Bernheim, Natasha Botchwey, and Rebecca Dillingham, can be found at www.aacu.org/peerreview/pr-fa08/pr-fa08_public_health.cfm.
- To request a copy of the 2007 report, *The Educated Citizen and Public Health: A Consensus Report on Public Health and Undergraduate Education* by Richard K. Riegelman, Susan Albertine, and Nancy A. Persily, visit www.ccas.net
- The September 2008 theme issue on undergraduate public health education of the *American Journal of Preventive Medicine-APTR* can be found at www.ajpm-online.net.



Liberal Education and Public Health: Surveying the Landscape

- ▶ **Kevin Hovland**, director of global learning and curricular change, Association of American Colleges and Universities
- Brenda A. Kirkwood**, public health student, the George Washington University School of Public Health and Health Services
- Caleb Ward**, project coordinator, The Educated Citizen and Public Health Project, Association of American Colleges and Universities
- Marian Osterweis**, senior fellow, The Educated Citizen and Public Health Project, Association of American Colleges and Universities
- Gillian B. Silver**, manager, educational and research programs, Association of Schools of Public Health

The Educated Citizen and Public Health (ECPH) initiative is premised on the idea that an understanding of public health issues is a critical component of good citizenship, and that by developing this understanding, students will learn to take responsibility for building healthy societies. Historically, the programmatic study of public health in colleges and universities has been largely limited to the graduate level. Today, however, evidence suggests that undergraduate students are able to take advantage of increased opportunities to study public health.

The emergence and spread of interdisciplinary undergraduate curricula in public health represents a rich opportunity. The ECPH initiative encourages faculty members and administrators to take advantage of this opportunity by applying the insights of an expansive vision of high-quality liberal education to the burgeoning field of undergraduate public health. In partnership with the Association of Schools of Public Health (ASPH) and the Association for Prevention Teaching and Research (APTR), AAC&U has advocated undergraduate public health education as a coherent example of a practical liberal education—one that develops students' capability to understand and take action to solve complex, unscripted, real-world problems. Within this framework, students experience the competing and complementary perspectives of the social sciences, natural sciences, mathematics, humanities, and the arts. At the same time, they develop their skills in written and oral communication, critical and creative thinking, and quantitative analysis. They also learn teamwork and evidence-based problem-solving skills. Through experiential learning opportunities, students come to understand how classroom knowledge can be applied to real problems within

their communities. In the process, they can become more engaged citizens, move toward intercultural competence, and gain experience in ethical reasoning and action. By approaching public health as liberal education—in its fullest sense—faculty members can better help students integrate seemingly disparate elements of their education and acquire the habits of lifelong learning.

THE GROWING UNDERGRADUATE PUBLIC HEALTH MOVEMENT

By thinking about the connections between public health and liberal education, participants in the ECPH initiative have begun to imagine how such an interdisciplinary field raises intellectual and structural questions that play out in general education courses and designs, in (often new) public health majors, minors, and concentrations, and in related disciplines. We have witnessed the enthusiasm and creative energy that eighty institutions brought to three faculty and curriculum development workshops in 2007 and 2008. The rich anecdotal evidence provided by this self-selecting group revealed a landscape marked by student demand for public health opportunities and institutional dedication to providing high-quality, integrative programs.

In collaboration with ASPH, with funding from the Josiah Macy, Jr. Foundation, and through the ASPH/CDC Cooperative Agreement, we have sought to expand upon these initial impressions by gathering both quantitative and qualitative data from across the academy about the curricular and structural footprint of this emerging field. Research strategies have included scanning and analyzing undergraduate program offerings, convening focus groups, and surveying AAC&U members. While no single



approach can be considered comprehensive, our efforts as a whole provide a rich array of information on undergraduate public health as a growing movement.

Baseline Data for the Number of Public Health Programs Currently Being Offered to Undergraduates

- One hundred and thirty-seven institutions (16 percent) offer an undergraduate major, minor, or concentration in public health or a similar field (community health, health education, health and society, etc.) that includes all or most of the key components of public health (i.e., introduction to public health, epidemiology, biostatistics, health policy and management, and global health).
- Thirty-three percent of research universities surveyed offer undergraduate programs in public health. Sixteen percent of institutions categorized as comprehensive/Master's and only 5 percent of baccalaureate institutions offer such programs.
- Of those institutions offering programs, nearly half are research universities (48 percent), and almost twice as many are public (66 percent) than are private (34 percent).
- Nearly one-half of institutions that have graduate public health programs also offer undergraduate programs, representing 29 percent of the total undergraduate programs in the field. In other words, 70 percent of undergraduate public health programs are not affiliated with graduate programs.

The first and most direct method used to measure undergraduate opportunities in public health was a count and analysis of programs appearing in college and university catalogs in July and August, 2008. A review of online catalogs for 837 four-year, U.S.-based, AAC&U member institutions yielded baseline data for the number of public health programs currently being offered to undergraduates (see sidebar for findings).

The snapshot numbers found in the catalog scan are certain to increase as the institutions that have participated in the ECPH project formally launch programs that are currently under development. In addition, survey findings (described below) indicate that many institutions that do not currently offer undergraduate public health programs plan to do so in the future. Moreover, it is important to note that during the catalog scan we did not systematically search for individual public health courses offered to undergraduates at institutions that do not offer majors, minors, or concentrations in public health. Epidemiology or global health courses, for example, may be offered through many sociology or global studies departments, but they were not counted in this scan unless they were bundled into a public health-related major, minor, or concentration. It is likely that some institutions that offer such individual courses related to public health will expand upon those offerings, leading to future undergraduate programs in public health.

To flesh out these initial findings, we analyzed program descriptions to examine the content and structure of the offerings. This review confirmed what we had already learned anecdotally from workshop participants, namely that undergraduate programs and courses vary substantially across many parameters, including the host department or school and the required and elective curricula. These public health programs also share certain important commonalities,

including an interdisciplinary approach and a common requirement for experiential/service learning in the community.

UNDERGRADUATE PUBLIC HEALTH PROGRAMS SURVEY

In the second phase of data collection, AAC&U and ASPH collaborated to convene focus groups, which assisted in the design of a research survey sent to all AAC&U member chief academic officers in January 2009. The goal of the survey was to provide insight into the institutional and curricular variability of undergraduate public health programs and to provide baseline data from which to measure growth over time. Due to limitations of the survey response rate (16 percent) and selection bias (responses were skewed toward larger institutions), data from the survey should only be viewed as suggestive. However, together with the catalog scan, program analysis, focus groups, and information from workshop participants, a coherent picture emerges of the approaches and challenges to developing undergraduate public health programs and curricula.

There are inherent challenges in making comparisons across the various types of institutions with different educational goals and student populations. Survey respondents were divided fairly equally among institutions focusing on professional or career-related fields (30 percent), arts and sciences programs (25 percent), and mixed programs (45 percent). The issue of clarity in the face of this diversity is further compounded by the interdisciplinary nature of the study of public health and the absence of a well-established agreement about what constitutes public health at the undergraduate level. Of those institutions reporting that they offer majors, minors, or concentrations in “public health or related fields,” nearly three-quarters do not call that offering “public health” for a variety of reasons.



In an effort to work around this definitional problem, we chose to focus our survey questions on a set of student learning outcomes associated with the basic principles of undergraduate public health (see sidebar).

Reflecting the greater movement toward learning outcomes as the compass for the curriculum, respondents identified

the broad liberal education outcomes (critical thinking, written and oral communication, integration of learning across disciplines, etc.) as critical areas of focus at their institutions. This positive identification, however, did not extend to the outcomes that were framed in the language of public health competency. Overall, very few respondents reported that the

health outcomes described their institutions' overall expectations and priorities for undergraduate student achievement. This discrepancy suggests that more work is needed to bridge the knowledge gap between the identification of broad learning outcomes and their application to individual, interdisciplinary programs of study.

The list of knowledge areas covered by institutions' common sets of learning goals or outcomes is consistent with the traditional foci of liberal education. Science and humanities top the list (92 percent), followed closely by social science (90 percent), mathematics (89 percent), global or world cultures (89 percent), and arts (80 percent). A relative low but significant proportion of respondents identify health as a primary knowledge area (35 percent), which compares unfavorably to languages other than English (47 percent), but favorably to sustainability (26 percent). While it is difficult to determine precisely how respondents interpreted "health" as a knowledge outcome area, we are encouraged to see that for more than one-third of institutions, it holds a dedicated spot in the context of common learning goals.

The focus groups shed some light on the logistical challenges of linking public health and general education. Participants described the value in integrating public health into general education, but pointed out significant obstacles to doing so. The major challenges identified by the participating deans and faculty included budgetary constraints on fiscal resources, structural limitations on coordinating across diverse departments, and lack of faculty expertise and development.

Our hope in the ECPH initiative is to increase the number of institutions identifying health as a shared outcome by emphasizing *public* health, thereby reinforcing the strong connections between the study of health and the liberal education outcomes shared by nearly all institutions.

Public Health and Liberal Education Outcomes

The Essential Learning Outcomes from AAC&U's LEAP initiative provide a framework that can be adapted to all fields of study (see www.aacu.org/leap/vision.cfm), as shown below for public health.

Students can understand how multiple disciplines bring unique perspectives to cross-cutting questions of population health and public policy.

- Integration of learning across disciplines

Students can explain and apply the basic principles of epidemiology, including rates, risk factors, disease determinants, causation, evidence, and intervention.

- Critical thinking
- Research skills
- Quantitative reasoning
- Oral and written communication skills

Students can explain and assess social and behavioral interventions to improve health of populations.

- Research skills
- Oral and written communication skills
- Intercultural skills and abilities

Students can evaluate complex arguments related to public policy and law.

- Critical thinking
- Civic engagement and competence

Students can explain the impact of the environment and communicable diseases on health populations.

- Oral and written communication skills

Students can identify the role that public health plays in disaster prevention and management.

- Ethical reasoning

Students can evaluate public policy issues with respect to access, quality, and cost and demonstrate understanding of health disparities within vulnerable populations.

- Intercultural skills and abilities
- Ethical reasoning
- Civic engagement and competence



Parallel to this, we also wish to demonstrate that the cross-disciplinary field of public health incorporates the traditional knowledge areas, and can therefore assist in fulfilling a wide range of an institution's learning goals.

The survey provided us with the opportunity to gather data about courses in which undergraduates wrestle with topics and methodologies identical to, or closely related to, those in public health. We know that 69 percent of respondents offer at least one course to undergraduates that addresses the fundamental outcomes of public health. Such courses are especially important and timely as institutions are committing additional resources and efforts to design and deliver integrative learning experiences as part of their liberal education missions. In addition to introducing students to the frameworks of public health, these courses can provide a valuable foundation for students as they apply the classroom experience to real-world situations.

We also have found that institutions that offer specific courses addressing the fundamental public health outcomes also demonstrate a high degree of interest in curricular innovation and application of high-impact pedagogies. Those institutions that are creating opportunities for students to explore the intersection of health and society are doing so by engaging students in service-learning opportunities (64 percent), developing capstone experiences (48 percent), offering thematically linked courses (32 percent), and creating learning communities (22 percent).

It should be noted that at the same time that undergraduate public health is emerging as a focus of study on many campuses, we are also witnessing a high level of attention to general education reform. A separate survey of AAC&U members revealed that the majority of administrators (56 percent) say general education has

increased as a priority for their institution. Senior administrators recognize a lack of coherence in their curricula, with only 35 percent of survey respondents describing their general education programs as having a coherent sequence of courses. Such findings represent an opportunity for undergraduate public health (as well as other interdisciplinary, integrative approaches) to serve as an organizing framework to engage students in general education.

The survey also revealed that those institutions placing a higher priority on general education are placing more emphasis on engaged learning practices, compared to those institutions in which the focus on general education has not increased over the past five years. The majority of member institutions do not currently engage students in real-world learning opportunities, as evidenced by the low marks for civic learning or engagement activities (only 38 percent say this describes their program very well), service-learning opportunities (38 percent), and experiential learning opportunities (36 percent). Indications suggest these are increasingly popular topics of discussion; however, no single one of these approaches is being incorporated into general education programs on a broad scale. There seems to be a natural fit between the demand for these pedagogies in general education and the already widespread use of such practices within undergraduate public health programs. It is the goal of the Educated Citizen and Public Health initiative to increase the intentional focus of public health courses on civic learning and engagement activities and further embed them within the curriculum.

CONCLUSION

The quantitative and qualitative data gathered to date suggest there is cross-cutting interest in incorporating public health into undergraduate curricula, presented in the form of majors, minors, and concentra-

tions. Critical curricular and cocurricular elements of such programs already exist on many campuses, with evidence to support anticipated growth of additional programs.

There is a high level of interest, commitment, and activity among nearly all surveyed institutions in defining learning outcomes either in majors, in general education, or in both. However, when we put those outcomes into the context of public health, senior academic administrators have not identified the specific health outcomes as important to their overall efforts. Well-designed undergraduate public health programs are ideally suited to align with essential learning outcomes of liberal education, but the connections are not yet clear to many of those who are driving the movement for curricular reform. This alignment, especially at institutions where the public health elements are not gathered in a program, requires intentional efforts to match outcomes and designs.

The lack of a clear, consistent view of what constitutes undergraduate public health presents an opportunity for definition, but also a substantial challenge to coherence. As the emerging field is taking shape, the liberal arts and public health communities have an opportunity to work together to influence its evolution. Due to its highly interdisciplinary nature, there will likely always be variations in how institutions choose to construct their public health programs of study. However, shared underlying themes and common programmatic characteristics will assist in the creation of an area of study widely recognized, and valued, by administrators, faculty and students alike. It is the intent of the Educated Citizen and Public Health initiative to highlight the inherent link between public health principles and liberal learning outcomes as we work toward providing our students with the knowledge, skill, and responsibility of building a healthy society. ■

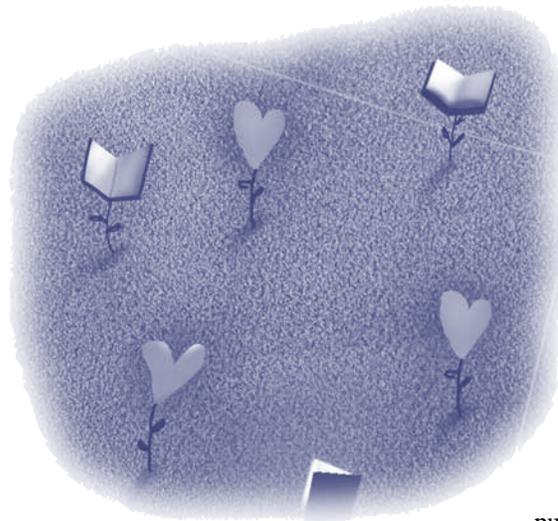


Philosophy, Public Health, and Liberal Education

► **Edward Sankowski**, professor of philosophy, University of Oklahoma–Norman

The discipline of philosophy is among the oldest and most “traditional” liberal arts fields. Philosophy has changed in fundamental ways, however, and has reinvented itself often in different sociocultural contexts—“Western” and non-“Western”. In this article, I want to suggest some ways that the field can reinvent itself again to contribute productively to the goal of teaching public health to undergraduates. In attending to public health issues, the field can, in turn, strengthen itself as an engaged and compelling liberal arts field that teaches students broadly transferable skills and knowledge. The reinvention of philosophy needed for this transformation can draw on its own approaches in normative, often “applied” ethics, and “social epistemology,”—the latter as represented by such philosophers as Alvin Goldman or Philip Kitcher—as well as by forging enhanced collaborations with the social and biomedical sciences, and other medical humanities.

The feasibility of such efforts depends on many considerations, including overall institutional mission, resources, openness to curricular innovation, faculty and student interest, the nature of an institution’s general education program, and its receptivity to interdisciplinarity. These efforts, I believe, are worthwhile, especially in the area of values and ethics; the field of philosophy offers an approach to understanding public health distinct from approaches provided by other fields, including those in the social sciences.



CONCEPTIONS OF PHILOSOPHY

Philosophy as it functions in contemporary U.S. higher education institutions cannot entirely be confined to its typical philosophy department homeland. Nonetheless, I wish for some institutional definiteness to frame this discussion mainly in terms of how the philosophy department in a contemporary U.S. university might, with extensive collaboration across disciplinary boundaries,

contribute to integrative education about public health in undergraduate liberal education. I want to argue that the philosophy department in some U.S. higher education institutions can and should contribute to undergraduate public health education while simultaneously and partly through these contributions continue to pursue a departmental mission as part of liberal education.

Just what philosophy *is* is itself a matter for controversy. Often, philosophy is identified with a canon of great works and auxiliary writings, but this conception is an oversimplification, and makes philosophy and public health work more difficult than problems-oriented conceptions of the discipline.

HOW CAN PHILOSOPHY DEPARTMENTS ADVANCE PUBLIC HEALTH OUTCOMES?

A philosophy department could contribute to public health studies in its own degree programs for its majors and minors, and in philosophy courses for the general education of nonmajors, as well as in more specifically dedicated philosophy courses chiefly intended for nonphilosophy specialists in areas such as the biomedical sciences.



I think it is quite realistic, though not obviously feasible everywhere, for some philosophy departments to offer a philosophy major or minor with a philosophy and public health emphasis, or more modestly, some electives, alongside a more traditionally conceived major or minor. For reasons of limited resources and personnel, the courses might initially—or possibly for a long time—be expected to do double duty as courses for majors/minors and for the general undergraduate student population.

A philosophy department major/minor with a public health emphasis would include at least one course in epistemology or philosophy of science with a focus on general issues about public health, or with a focus on more specific topics, such as case studies of public health problems in

countries, or a course or segment about moral obligations concerning assistance from richer countries about health care in poorer countries. Such a major/minor option should also preferably include auxiliary requirements in statistics and epidemiology, as well as a capstone course with a public health emphasis for the major option.

Philosophy departments could also collaborate with interdisciplinary programs devoted to education of undergraduates about public health; for example, in team-taught courses, philosophy faculty could coteach with public health-related faculty about the sciences, or the normative ethics or legal policy, or the politics of public health areas. Such courses could include study of topics such as health insurance coverage, reproductive health,

human pursuit—public health-related activities, as well as science, medicine, the arts, religion, ethics, law, etc. This pragmatic conception of philosophy does not sharply distinguish philosophy from the activities it helps coordinate. In this way, a reflective public health practitioner, in thinking over fundamental concepts or theories in the field, may be “doing philosophy,” without having a degree in the academic subject of philosophy. Someone with an academic degree in philosophy may also collaborate in such work—including the teaching of undergraduates—with academics in colleges of public health, or as coauthors or members of teams devoted to research or interventions about public health. Thus, if public health as an academic area is thought of as interdisciplinary or multidisciplinary, any of the disciplines involved in it have philosophical aspects that the philosophy department could work on advancing across departmental lines.

Philosophy can also contribute to *research* in public health and even interventions about public health, though it is currently exceptional for it to do so. Undergraduate research, as well as undergraduate participation in “community engagement” activities, as encouraged by the Carnegie Foundation for the Advancement of Teaching, can be at once philosophically oriented, liberal-arts oriented, and directed at the improvement of public health. The philosophy department in its more traditional forms has not made much use of undergraduate internships or fieldwork-oriented or interventionist research as part of undergraduate liberal education. This is a regrettable limitation of several humanities disciplines. Philosophy could profitably do more to further field experiences, internships, and community engagement by encouraging philosophy majors and minors to do research on environmental health issues, health-care disparities in urban areas,

Philosophy can be thought of as a discipline or interdisciplinary and multidisciplinary activity that examines, evaluates, and helps guide the theory and practice of fundamental features of any human pursuit

the United States or abroad, including AIDS, influenza, obesity, infant mortality, and sex education. While it is often difficult to keep factual and normative issues apart, such topics can be discussed with a greater emphasis on one or the other area. A required normative ethics or politics of public health course could also consider similar issues from the point of view of normative policy positions and their justification. One example of the latter might be a course about the often-asserted right to health care in a U.S. or global context, a course or segment of a course about the normative politics of international and national governmental responses to AIDS, a course or segment about the ethics of biomedical research in less-developed

global health, epidemics, substance abuse, disaster responses, accidents, the pharmaceutical industry, medical informatics applied to populations, societal mental health, and environmental health issues. The academic discipline of philosophy could do all this without compromising its nature.

PHILOSOPHY: A PRAGMATIC VISION

Philosophy can be seen as an activity that includes, besides other areas, the philosophical part of any discipline. Still more generally, philosophy can be thought of as a discipline or interdisciplinary and multidisciplinary activity that examines, evaluates, and helps guide the theory and practice of fundamental features of any



etc., in their immediate community or in more far-flung locales, or through other philosophy department involvement in interdisciplinary program study and community-engagement activities.

ONE EXAMPLE: A PHILOSOPHICAL COURSE ABOUT AIDS

An advanced philosophically oriented undergraduate course about AIDS might be useful as a departmental elective for philosophy majors, for a wide range of general education students, and for biomedical sciences majors; it could also serve as a capstone course for some majors.

A course about the social facts as well as the normative ethics and politics of responses to AIDS might include the history of the pandemic, comparative discussions of governmental responses in the United States and South Africa, as well as other countries; the Thabo Mbeki denial of a causal connection between HIV and AIDS; Mbeki’s academic supporters in denial of an HIV/AIDS causal link, such as the biomedical scientist Peter Duesberg of the University of California-Berkeley; discussions of academic research efforts such as NIH-supported studies of the role of circumcision of males in decreasing incidence of infection in certain African countries; the pharmaceutical industry response to the crisis; evaluation of U.S. government assistance to Africa through the President’s Emergency Plan for AIDS Relief (PEPFAR), etc.

There is a question of what philosophy has to add to such a topic. There are a variety of possible answers to this. Arguably, and it is a “philosophical” argument, the AIDS epidemic and other public health-related crises of comparable seriousness raise questions about the moral and political legitimacy of both domestic governments and the global system of international relations, incorporating as it does entities such as the National Institutes of Health; organizations such as the

United Nations; subdivisions of the UN, such as the World Health Organization; universities; nonprofits, such as the Gates Foundation and the Clinton Foundation; and so forth. Politicians and philanthropists also seem to understand that public acknowledgment of their rights to command the power and resources they do is furthered by their addressing huge public health problems such as the AIDS pandemic. There would be a “philosophical” dimension to the issues addressed in the course, partly because of the fundamental nature of some of the questions.

CONCLUSION

Liberal education takes seriously preparation for a student’s social prospects as a free person. Among other things, this preparation can include the student’s prospects as a free citizen, hopefully of a democracy; the student’s role not only as a potentially free citizen in his or her own country, but a free person in global society. Problems about public health are constantly presenting themselves as if they may be purely or almost entirely factual, scientific, technical matters for experts to address, but at their core, many of these problems have a substantial dimension of citizenly or cosmopolitan choice in accordance with critically examined values. Liberal education may, indeed should, have technical, scientific, factual aspects, but it is ultimately more about enabling the student to choose freely, reasonably, and ethically about matters of values.

A big part of both philosophy and liberal education, then, is furthering citizenly and cosmopolitan free choice by clarifying and guiding individual and collective decisions about society. That is why the topic of how society should respond to AIDS or public health crises of similar magnitude cannot be purely or mainly technical or scientific, but must be philosophical and can be central to all students’ liberal education. ■

AAC&U MEETINGS

NETWORK MEETINGS

EDUCATING FOR PERSONAL AND SOCIAL RESPONSIBILITY: Deepening Student and Campus Commitments

October 1–3, 2009
Minneapolis, Minnesota

INTEGRATIVE LEARNING: Addressing the Complexities

October 22–24, 2009
Atlanta, Georgia

GENERAL EDUCATION AND ASSESSMENT: Maintaining Momentum, Achieving New Priorities

February 18–20, 2010
Seattle, Washington

SHAPING FACULTY ROLES IN A TIME OF CHANGE: Leadership for Student Learning

March 25–27, 2010
Philadelphia, Pennsylvania

ANNUAL MEETING

THE WIT, THE WILL ... AND THE WALLET: Supporting Educational Innovation, Shaping Our Global Futures

January 20–23, 2010
Washington, DC

The Evolution of the Interdisciplinary Health and Society Major at Beloit College

► **Marion Field Fass**, professor of biology, Beloit College
Nancy Krusko, professor of anthropology, Beloit College

The development of the health and society major at Beloit College represents the convergence of student and faculty interests, and of local and national educational trends, within an environment that is flexible and supportive of curricular innovation. Beloit College is an independent liberal arts college of 1,250 students, located in southern Wisconsin, and is not connected to a school of public health. We have been able to construct an interdisciplinary major focused on the big questions of global health and social justice that is built upon disciplinary courses, internship experiences, study abroad, and opportunities for reflection, synthesis, and presentation.

Students who choose the health and society major take a core set of courses related to health and statistics, and then develop a theme that enables them to integrate different perspectives to build their understanding of the complexities of health and health care. In their thematic courses, they study women's health, development, policy and/or culture and behavior, while developing the critical thinking skills that characterize the best liberal arts graduates.

BELOIT COLLEGE—THE SETTING FOR INNOVATION

How did this major develop, unconnected to a school of public health, at a small liberal arts college? Beloit College prides itself on a curriculum built upon three pillars of interdisciplinary, experiential, and international education. Beloit's mission and goals mirror the LEAP learning outcomes from the Association of American Colleges and Universities (AAC&U). Beloit has a long tradition of pedagogical leadership and curricular initiatives that bring hands-on activities and real-world problems into the classroom. Faculty members frequently design and develop new courses related to their interests. These engaging pedagogies and courses model the application of theory to practice for our students.

Beloit College's student body demonstrates a strong commitment to service and social justice. Merit scholarships that reward leadership and community service as well as academic excellence shape the outlook of the entire student body. The students who come to Beloit College expect to engage actively with the community and the curriculum, look to their faculty members as leaders and role models, and eagerly embrace activism. Within this context, several strong students who were studying at Beloit from 1998 to 2004 proposed self-designed interdisciplinary community health majors, expanding upon existing courses in medical anthropology, medical sociology, biomedical ethics, and the biology of disease. These students all had strong interdisciplinary worldviews, clear ideas about what they wanted to achieve, and the writing skills to present their ideas persuasively. They completed majors that demonstrated the value of studying health through diverse disciplinary lenses at the undergraduate level.

We served as the main faculty advisers for these interdisciplinary majors and were excited by the program of study that these students had assembled. We watched them build interdisciplinary connections, critically analyze real-world problems, and link projects between the campus and the community. The courses that formed the foundation for the self-designed majors included many of the key components necessary for the study of public health, including global perspectives; emphases on ecology, population biology; and cultural and ethical perspectives on individual decision making. We recruited other faculty members who were teaching health-related courses and developed a template for a health and society major. At the same time, an overlapping group of faculty members were designing an interdisciplinary environmental studies major. These two interdisciplinary majors were presented to the faculty in 2005 and approved with strong, broad support across the college faculty.



THE CURRICULUM

The core courses of the health and society major engage students in disciplinary theories and practices as they analyze health-related issues. These core courses address many of the objectives identified by AAC&U's the Educated Citizen and Public Health initiative in the three courses required for a public health minor: Public Health 101, Epidemiology 101, and Global Health 101. The major builds upon the strength of our departments, the flexibility of our curriculum, and the willingness of faculty members to work with students who are not majoring in their department.

Because the core courses existed before the major, we were able to accomplish the development of the new major program without new faculty lines. The program has increased demand for the core courses, supporting courses, and courses in statistics; to date, faculty from departments such as psychology, biology, anthropology, and international relations have been willing to accept health and society majors into their classes. As the major has grown, however, it has created enrollment stress for the supporting departments and raised questions about institutional commitment.

The major consists of fourteen four credit hour courses (fourteen Beloit College units). Each student takes two introductory courses in the social sciences, two in the natural sciences, a statistics course, a midlevel science course, and three core courses. The core offerings and the departments that offer them include:

- Health, Medical Care and Society (sociology),
- Medical Anthropology (anthropology),
- Biomedical Ethics (philosophy),
- Emerging Infectious Diseases (biology),
- Women's Health (interdisciplinary studies), and
- Nicaragua in Transition: Health and

Microcredit (interdisciplinary studies). Together these courses address health at the individual and population levels, cultural norms and social institutions, and the ethical challenges that face individuals, health care practitioners, and policy makers. Epidemiology is introduced in Emerging Infectious Diseases and reinforced in Medical Anthropology and Health, Medical Care and Society. The cultural relativism discussions that occur regularly in Medical Anthropology complement the ethical analyses student undertake in Biomedical Ethics. Each of

majoring in Health and Society have developed a range of themes including nutrition, women's health, and health and development. Their internships in Beloit, through the Wisconsin Community Health Internship program, and participation in study abroad programs complement these themes. Each student takes a senior capstone course that includes a group project in the community. Recent projects have included a community needs assessment, preparing resources for elder care, and working with local schools on nutrition and wellness. Seniors also write

Students have engaged in real-world analyses—interviewing community members about their views of death and dying, constructing a “pandemic influenza plan” for the college, and working with agencies providing women's health services

these courses analyzes issues in health and health care, including social disparities, the emergence of new diseases, the role of culture in decision making, and the relationship between development and health. Many of the courses are offered in the spring semester, so students often take several at the same time, building a cohort of engaged students that helps them create interdisciplinary linkages. In these courses, students have engaged in real-world analyses—interviewing community members about their views of death and dying, constructing a “pandemic influenza plan” for the college, and working with agencies providing women's health services.

Each student majoring in health and society proposes a theme that consists of four related courses and an internship. Using courses at Beloit College and approved off-campus programs, students

a reflective summary of their learning and its connections to their future. (More information is at www.beloit.edu/heal)

Students have both created the model for the health and society major and collaborated with faculty to expand the curriculum by adding content to existing courses and developing new courses. For example, students organized a senior seminar on Health and Human Rights that brought international relations and health and society students together to imagine strategies for dealing with complex questions of health and social justice.

Nicaragua in Transition: Health and Microcredit, now included as a core course, was first proposed by a student who had returned from a service-learning experience. After taking Nancy Krusko's Medical Anthropology course, centered on poverty as a pathogen, the student recruited Krusko to accompany her to



Nicaragua. In collaboration with the Office of International Education, they developed a course in which students focus on “place” as a variable in health, using ethnographic tools first to study the city of Beloit and then applying these tools to study the role of microcredit and poverty reduction in Nicaragua. To date, three groups of students have taken this course, including its spring break study tour in Nicaragua.

The Health and Society students at Beloit College have had an impact on the larger college curriculum. In classes across the disciplines, these students have expressed the desire to write their papers on health-related topics. Many faculty members have responded by encouraging these papers and by adding course content to address health issues. The international relations instructors, for example, have added cases about international public health. In peace studies, the professor has included discussion about the Cuban medical system and medical outreach in Africa as a powerful example of “positive peace.” Faculty members have commented that health and society students are rewarding to teach because they are willing and eager to examine contrasting explanatory models, to integrate across disciplines, and to discuss their experiences from community service and study abroad.

Collaborations with the Office of International Education enable students to find programs of study that complement their studies on campus. Seventy-five percent of health and society majors study off campus for at least one semester. They participate in Beloit College’s Cities in Transition programs that include opportunities to study nutrition and community health in Quito, Ecuador, and HIV/AIDS advocacy in Dakar, Senegal. Many students participate in third-party provider programs that highlight public health and community development; they

have studied health care in Denmark, maternal mortality in Tanzania, sanitation in Thailand and public health in Chile. Students have also studied urban health in Chicago while participating in the Associated Colleges of the Midwest program.

The health and society major includes opportunities for students to reflect upon their off-campus learning as they prepare presentations for the Annual International Symposium in the fall and the Annual Student Symposium in the spring. Recent presentations by Health and Society majors have included

- *Si, Se Puede*: The International HIV/AIDS conference in Mexico City
- *Before Globalization We Were Poor, But We Had Our Dignity*: Stories of health around the world
- *So Much More Than Trash*: Alternative education in an urban slum in Thailand
- *Sangomas*: The intersection of culture and medicine in South Africa

ASSESSMENT:

The health and society major at Beloit College has grown from three graduates in 2006 to sixteen graduates in 2009. Students have told important stories about hope and the potential for change; their education has been intentionally interdisciplinary, and they have traveled the world to learn about culture, public health, and community development. Their studies have taken them to Nicaragua and Ecuador, Kenya, South Africa, Thailand and China, and Baltimore and Chicago. Half are fluent or nearly fluent in a second language. All have studied statistics, participated in a significant internship or service-learning project, and worked together with classmates and community members in their learning. This program has engaged students with the big questions, enabled them to craft complex responses, and encouraged them to reflect on issues of ethics and social justice. One graduate

summarized the experience saying, “I believe that the program sparked in me an intense interest in research, intervention, and policy. I feel as if I have a lot more to learn that I can only learn in practice. I also feel like the program provided me with the tools and critical thinking skills to understand and possibly address the complex relationships that exist in healthcare today.”

Of the sixteen students who graduated in 2006–09, seven are presently enrolled in graduate programs in public health. Several are preparing for careers in nursing. Eight are working, or worked before graduate school, in community advocacy positions related to health. One graduate is now in Kenya on a Rotary International Ambassador Fellowship.

FUTURE CHALLENGES

As this major grows, it faces challenges in staffing, access to limited resources, and negotiating its position in the institutional structure. Its appeal to students and faculty has challenged us to consider the structures that support interdisciplinary study, and explore broader questions of innovation within our academic borders.

Students who have taken advantage of the opportunities provided by this major feel that they are, in the words of one graduate, “intellectually promiscuous.” Their skills and knowledge enable them to view the complexities of global health issues with hope rather than despair. They are, in our view, intellectually empowered. ■



Offering an Arts and Sciences Associates of Arts Degree Transfer Program in Public Health

► **Jeanette Jeffrey**, associate professor, international health and nutrition, Howard Community College

In fall 2009, Howard Community College (HCC) will become the first two-year college in the nation to offer an arts and sciences associate of arts (AA) transfer degree program in public health. This program is designed to articulate with the Health Administration and Policy Program (HAPP) public health track at the University of Maryland–Baltimore County (UMBC). Located in Columbia, Maryland, HCC is uniquely positioned to launch this initiative. Through the city’s conception, design, and development, Columbia, Maryland, models an integrated global community. Using principles of interdependence and diversity, James W. Rouse, Columbia’s founder and developer, envisioned a community that would bring together people of all races, ethnicities, religions, and socioeconomic levels. The 1,092 students of the 2009 HCC graduating class, which represented 101 nations, stood witness to Rouse’s vision of unity and diversity.

Located between Baltimore and Washington, D.C., HCC has ready access to global public health organizations, research institutions, and premier schools of public health (i.e., Catholic Relief Services, USAID, NIH, NCI, and Johns Hopkins Bloomberg School of Public Health), providing rich educational experiences, on and off campus, through collaborative ties. Institutionally, HCC fosters and promotes a culture of civic engagement, incorporating service as one of its eight core values: innovation, nurturing, sustainability, partnership, integrity, respect, excellence, and service. Furthermore, HCC’s mission to provide pathways to success, and its vision—*A place to discover greatness in yourself and others*—are working ideals upheld by HCC’s administration and board of trustees, who support new faculty initiatives, encourage creativity, and celebrate excellence in the workplace. It is in this environment that the arts and sciences

associate of arts transfer degree program in public health was conceived, has evolved, and now can flourish.

YOU CAN GET THERE FROM HERE

As a two-year college, HCC prepares students for transfer to four-year institutions, provides career training programs (i.e., nursing, emergency medical services, radiologic technology, and biomedical technology), and establishes pathways of learning through credit and noncredit courses. HCC’s motto, “You can get there from here,” embodies the culture of the campus with a spirit that extends beyond academic success and transfer.

Supported through administrative funding, the HCC Center for Service Learning collaborates with the community to create meaningful service experiences that extend classroom and cocurricular

HCC fosters and promotes a culture of civic engagement, incorporating service as one of its eight core values: innovation, nurturing, sustainability, partnership, integrity, respect, excellence, and service

learning while encouraging civic engagement, community awareness, and personal development. During the 2008–09 academic year, 525 HCC students engaged in curricular and cocurricular service-learning projects. With more than eighty partnering sites from which to choose, HCC public health program students will be introduced to service through a course titled Personal and Community Health. This course will give students direct community involvement in assessment, prevention, protection, and policy—the cornerstones of public



health—and, as recommended by the LEAP Principles of Excellence, will challenge students to “engage in the big questions” (LEAP principle four) and take on “real-world problems” (LEAP principle five). In preparation for their service work, students will develop a goal statement and three supporting objectives, thereby providing a compass for their own plan of excellence (LEAP principles one and two). Assessment in the form of timely reflection (submitted via e-mail within forty-eight hours of each service visit), a question-guided culminating final reflection essay, and an in-class formal presentation of the semesterlong service will be used to “deepen learning and to establish a culture of shared purpose and continuous improvement” (LEAP principles three and seven). Through service learning, students will forge a link between the theory and practice of public health.

EVOLUTIONARY TIMELINE OF THE HCC ARTS AND SCIENCES AA TRANSFER DEGREE PROGRAM IN PUBLIC HEALTH

Prior to my faculty appointment at HCC, I served as an adjunct instructor for two years at UMBC and continue to teach there in the Health Administration and Policy Program (HAPP). Key to this enduring partnership is a strong relationship—the feeling of being valued and respected by my HAPP colleagues, who consider my work to be an integral part of the success of our students and the HAPP program. Our shared passion for teaching and promoting public health at the undergraduate level has resulted in the evolution of a seamless pathway for HCC public health program students to transfer to UMBC.

In 2002 I joined HCC as an assistant professor in health sciences and was immediately charged with the task of developing a promotion plan to associate professor. The diversity of the HCC community and a note from a former student, crediting my passion for teaching as the inspiration that

led her to Africa to train nurses, inspired me to develop my promotion plan. Although my initial goal was to create an arts and sciences AA transfer degree program in global health, not merely an option, my department chair advised me to save that project for subsequent promotion.

In November 2005 I was contacted by James Tielsch, a professor of international health and associate chair of academic programs at the Johns Hopkins Bloomberg School of Public Health (JHSPH), who

asked if I would be interested in collaborating on the development of a model undergraduate course on global health. This contact led to us coteaching the first Introduction to Cross-Cultural and International Health course (renamed Global Health) at HCC in spring 2006. We have since brought the pilot course with revisions to UMBC and Johns Hopkins.

Inspired and encouraged by Tielsch, I took a one-year sabbatical (2007–08) from HCC and attended the eleven-month MPH

Public Health—Howard Community College (2009–2010)

An Arts and Sciences AA Degree Program (Transfer)

General Education Core

General education core credits in excess of thirty-six will transfer as general electives or courses related to the major. Each student's total of general education and required courses must equal at least sixty semester hours of credit.

		Credits
Composition	ENGL-121 College Composition I	3
	ENGL-122 College Composition II	3
Arts and Humanities	Literature core course	3
	FINE-102 Arts, Culture and Ideas	3
	PHIL-103 Introduction to Ethics	3
History	History core course	3
Social Sciences	GEOG-101 Introduction to World Geography	
	OR	
	GEOG-102 Elements of Cultural Geography	3
	Social Science core course	3
Science	Science core course (one credit must be a lab)	7–8
Mathematics	MATH-138 Statistics	4
Interdisciplinary	HEED-115 Personal and Community Health	3

Required Course Related to Major

PUBH-101	Introduction to Public Health	3
PUBH-210	Epidemiology	3
PUBH-230	Health and the Disease Process	3
PUBH-280	Global Health	3
NUTR-211	Nutrition	3
Humanities	World Language Sequence*	8
TOTAL		61-62

*World Language Sequence requirements vary by institution. At HCC, the World Language Sequence means two sequential foreign language courses in the same language (e.g., SPAN-101 and SPAN-102, or FREN-102 and FREN-201), excluding courses taught in English.



program at JHSPH. My capstone project (and subsequent promotion plan) was the development of the HCC arts and sciences AA transfer degree program in public health (see outline below: Public Health—Howard Community College 2009–10). The timely publication of *The Educated Citizen and Public Health: A Consensus Report on Public Health and Undergraduate Education* (Riegelman, Albertine, and Persily 2007) served as my guide in the development of this program.

During fall 2007, UMBC introduced its HAPP public health track (see outline

below: Health Administration and Policy Program—UMBC 2009–10) and within two years surpassed the department’s five-year projection goal of declared HAPP-public health majors (see below).

UMBC HAPP Public Health Track Enrollment Date	Number of Declared HAPP—Public Health Majors
July 2007	10
March 2008	32
February 2009	63
May 2009	79

The proposal for the arts and sciences associates degree transfer program in public health—including two new courses, Introduction to Public Health (PUBH 101), Epidemiology (PUBH 210), and a course name and designator change from Introduction to Cross-Cultural and International Health (HEED 127) to Global Health (PUBH 280)—was approved by the HCC curriculum and instruction (C & I) committee spring 2009 and will be included in the 2009–10 catalogue.

Currently, three HCC public health courses (see below) are under review by the UMBC Articulation Committee to determine course equivalency. Upon approval, HCC students who transfer these courses to UMBC will earn nine upper-level credits toward their forty-five required upper-level credits for graduation. This, we expect, will bring further growth to the public health programs at both HCC and UMBC.

HCC Course	UMBC Equivalent Course
PUBH 101 Intro to Public Health	SOCY 354 Social Basis of Public and Community Health
PUBH 210 Epidemiology	SOCY 420 Social Epidemiology
PUBH 280 Global Health	HAPP 380 Global Issues in Health and Disease

FUTURE INITIATIVES

Howard Community College is currently revising the general education core requirements for all degrees, to be reflected in the 2010–11 catalogue. The revised program (see outline below: Public Health—Howard Community College—Revised 2010–11) will allow for nine additional public health credits to be included under required courses related to the major. A three-credit environmental health course, proposed through HCC’s science and technology division, was recently approved by the C & I committee and will be cross-listed with the public health designator, PUBH. This course, along with two addi-

Health Administration and Policy Program—UMBC (2009–10) A Bachelor of Arts Degree Program

Core Curriculum Public Health Track III

		Credits
HAPP 100	Survey of the U.S. Health Care System	3
HAPP 452	Health Care Organization and Delivery	3
HAPP 495/496	Internship and Internship Seminar	6
ENGL 391	Advanced Exposition and Argumentation	
	OR	
ENGL 393	Technical Writing	3
IS 101	Introduction to Computer Based Systems	3
IS 295	Intermediate Business Applications	3
STAT 121	Introduction to Statistics for the Social Sciences	
	OR	
STAT 350	Statistics with Applications in the Biological Sciences	
	OR	
STAT 351	Applied Statistics for Business and Economics	
	OR	
SOCY 301	Analysis of Sociological Data	4
Natural Sciences	Two courses from the approved list of natural sciences	8

Track III: Public Health

HAPP 380	Global Issues in Health and Disease	3
HAPP 411	Health Planning and Regulation	3
HAPP 412	Research Methods in Health	3
SOCY 354	Social Basis of Public and Community Health	3
SOCY 420	Social Epidemiology	3

PLUS

Four courses from the approved list of electives; Track III students may replace two electives with two courses from the approved list of natural science (twelve to fourteen credits).



tional three-credit courses in public health, yet to be developed and proposed, will be included in the revised program.

To assess and compare achievement of students enrolled in HCC's course Global Health (PUBH 280) to that of UMBC's course Issues in Global Health and Disease (HAPP 380), we will conduct a three-year learning outcomes assessment, commencing spring 2010.

CONCLUSION

The HCC Cross-Cultural and International Health option (precursor

to the arts and sciences AA transfer degree program in public health) had, on average, ten to fifteen students enrolled in its individual classes—with few students declaring it as their course of study. Without an established articulation pattern in place, advertisement for this option was limited.

In contrast, the new arts and sciences associate's transfer degree program in public health will be marketed on and off campus (i.e., semester course listing mailings, Web-based advertising, campus-posted flyers). Considering the rapid

growth of UMBC's HAPP public health track, we likewise expect to attract and enroll a significant number of students at HCC. The new PUBH designator will also enable students to easily search for and recognize public health courses.

The Educated Citizen and Public Health: A Consensus Report on Public Health and Undergraduate Education, published in October 2007, recommends the following under the section Administrative Considerations and Requirements: "Effective programs negotiate across boundaries of departments and schools. An administrative entrepreneur at the center of the institution (in the office of academic affairs) can help." The vice president of academic affairs at HCC has been our greatest supporter in the successful development of the public health program and has championed my continued partnership with UMBC. He, too, has nurtured both my scholastic and professional growth in the field of public health by providing funding (i.e., summer grants, workshop and conference fees) for advancement opportunities and recognizing me as the leader of this initiative.

Community college transfer students are vital to the strength of four-year institutions. Guided by mutual respect, HCC and UMBC are philosophically and academically prepared to reach our collaborative goal of educating outstanding citizens and future public health professionals. ■

Public Health—Howard Community College—Revised (2010–11) An Arts and Sciences AA Degree Program (Transfer)

General Education Core

Each student's total of general education and required courses must equal at least 60 semester hours of credit.)

		Credits
Composition	ENGL-121 College Composition I	3
Arts and Humanities	World Language Sequence	8
	FINE-102 Arts, Culture and Ideas	3
	PHIL-103 Introduction to Ethics	3
Social Sciences	GEOG-101 Introduction to World Geography OR	
	GEOG-102 Elements of Cultural Geography	3
	History core course	3
Science	Science core course (one credit must be a lab)	7-8
Mathematics	MATH-138 Statistics	4
Interdisciplinary	HEED-115 Personal and Community Health	3

Required Courses Related to Major

PUBH-101	Introduction to Public Health	3
PUBH-210	Epidemiology	3
PUBH-230	Health and the Disease Process	3
PUBH-280	Global Health	3
NUTR-211	Nutrition	3
PUBH-?	Environmental Health	3
PUBH-?	Public health course(s)	6
TOTAL		61-62

*World Language Sequence requirements vary by institution. At HCC, the World Language Sequence means two sequential foreign language courses in the same language (e.g., SPAN-101 and SPAN-102, or FREN-102 and FREN-201), excluding courses taught in English.

REFERENCES

- Association of American Colleges and Universities. 2007. *College learning for the new global century: A report from the national leadership council for Liberal Education and America's Promise*. Washington, DC: Association of American Colleges and Universities.
- Riegelman, R. K., S. Albertine, and N. A. Persily. 2007. *The educated citizen and public health: A consensus report on public health and undergraduate education*. Council of Colleges of Arts & Sciences. www.ccas.net/files/public/Publications/Public_Health_and_Undergraduate_Education.pdf



Infusing Public Health Education into the Undergraduate Curriculum: The Experience of a Comprehensive University

► **Kathleen Roe**, professor of community health and chair of the health science department, San José State University

The Institute of Medicine's 2003 call to introduce all undergraduate students to public health education has stimulated the imaginations of faculty across the curriculum and across the country (Gebbie, Rosenstock, and Hernandez 2003; Riegelman, Albertine, and Persily 2007). The subsequent Association of American Colleges and Universities (AAC&U) initiative, the Educated Citizen and Public Health, brought forward the potential contributions of a public health perspective to liberal arts programs, particularly in smaller institutions with strong commitment to integrative learning and transdisciplinary inquiry (Albertine, Persily, and Riegelman 2007).

My colleagues and I, faculty at a large comprehensive university, watched these developments with both delight and revelation. Our delight was that of any academic specialists when the intellectual area about which they have been passionate for a lifetime is suddenly discovered by others. The revelation was a bit more complicated. "How are they able to do it?" we asked in wonder and a little envy, as we learned of new public health minors and complex courses initiated without being overly concerned about headcounts or resources. Compared to these nimble actors, we felt locked in bureaucracy and unable to contribute to the increasingly interesting discourse on the value of the "public health imagination" to the future of our world. So imagine our surprise when, participating in the 2008 AAC&U Undergraduate Public Health Faculty Development Institute, we realized that many of the challenges the liberal arts faculty were now encountering were areas in which we had been nimble and creative, both in and in spite of our very different institutional context.

Three of those challenges are addressed below: (1) engaging health-related academic units in public health general education, (2) working collaboratively across units to create public health learning opportunities, and (3) establishing undergraduate public health education in institutions with and without graduate public health programs. Examples and reflections are drawn from our experience in the Health Science Department at San José State University (SJSU), a large, urban, diverse, and complex comprehensive university. Our department has had a graduate public health program since 1970 and, since 2000, a stealth strategy to infuse public health values and perspectives throughout the university.

ENGAGING ALLIED HEALTH UNITS IN PUBLIC HEALTH AND GENERAL EDUCATION

We realized long ago that general education was an effective pathway for introducing public health inquiry to undergraduates across the curriculum. Over the years, we have also found it to be a strategic way to interest students in the range of majors that can both utilize and inform the population health perspective. In addition to the humanities and arts, general education through the public health lens can intrigue students with the community-based aspects of nursing, medicine, dentistry, and health science; quantitative fields such as statistics and demography; applied disciplines such as environmental studies and communications, and the biological and social sciences (Albertine 2008). This broad-based appeal helps champions of undergraduate public health education engage diverse academic partners in teaching or supporting general education. Ironically, some of the hardest units



to engage can be those that offer health professions degree programs.

Academic units offering health-related programs must often address rigorous professional accreditation requirements, frequently leaving few resources or incentives for being involved in general education. Powerful incentives for our department included a university mandate to increase enrollments and the national visibility of the AAC&U public health and liberal education initiative. As an under-enrolled “discovery” major, community-based health science could certainly grow and thus meet the mandate. This possibility fueled our interest in accelerating the moment of public health “discovery.” Around the same time, the AAC&U initiative sparked new intellectual interest in general education among some of our graduate public health faculty. The initiative also helped legiti-

mate our subsequent move into general education (GE) areas traditionally “off limits” to an applied health unit (“What qualifies public health to teach core math?” was one of the first questions from the university committee that governs the quantitative reasoning area of SJSU’s general education). Early success provided a third incentive for our department’s venture into public health-oriented general education. Indeed, the positive response to our public health-infused courses contributed to a 300 percent increase in our GE enrollments and the health science major in just four years.

Despite our departmental success, the timing was not right for a larger university-wide public health curricular

initiative. However, our newly invested faculty developed a twofold strategy for expanding the public health presence in the university’s general education offerings. In some cases, we worked from the inside, introducing public health examples and principles throughout existing curricula. For example, we more explicitly centered the social ecological model as the conceptual foundation of our popular lower-division general education course, *Understanding Your Health*. This expanded the personal health focus to include social determinants of health and broader level actions, such as policy advocacy and organizational change. We also infused public health examples into our sections of the university’s required junior-level writing course. Anecdotal and course evaluation data consistently demonstrate that students from a broad range of

lower-level quantitative reasoning area through student work with population health data sets. This strategy also builds in faculty flexibility, since the course instructor need not be a public health expert. We are using this approach to a new upper-level course in the earth and environment area, designing the course to meet the required transdisciplinary and integrative student learning outcomes using exploration of environmental health through the public health lens. As recommended by the *Consensus Report on Public Health and Undergraduate Education* (Riegelman, Albertine, and Persily 2007), other public health areas particularly well suited to general education include epidemiology, global health, and critical issues in public health (Public Health 101).

WORKING COLLABORATIVELY ACROSS UNITS FOR COMMUNITY- BASED PUBLIC HEALTH EXPERIENCES

Graduate public health curricula draw heavily on practical experience (Council on Education for Public Health 2005); the initiatives for undergraduate public health education make the same commitment, most often through internships and integrative service learning (Cashman and Seifer 2008). However, this ideal can present a challenge when new public health curricula are developed in institutions without public health units and the attendant cadre of faculty, field sites, and community contacts. Such settings call for creative collaboration, itself a hallmark of the public health way of knowing, being, and acting. Two examples from our experience may stimulate ideas about creative collaboration across diverse academic units for a public health experience.

Collaboration for Neighborhood Change. A technology grant from a local computer company facilitated a unique collaboration between engineering, health science, and urban planning students. The engineering students developed software

Our newly invested faculty developed a twofold strategy for expanding the public health presence in the university’s general education offering

backgrounds enjoy the learning activities that introduce, within the required course template, the 1918 flu pandemic and its community-level impact, social determinants of contemporary health and health disparities, and the scholarly public health literature. Other departments, including nutrition, anthropology, and business, have used these learning activities in their own sections with excellent results, even when the instructor has no public health background.

Our second general education strategy was to design new general education courses that were explicitly framed by the public health perspective. A new course, *Health Statistics*, was designed to meet all of the institutional requirements of the



for handheld computers that allowed GPS mapping, real-time notes, audio recording, and data entry for community observations. Students in our introductory major course, Community Health Promotion, then worked in teams to use the software and handheld computers to document the risk and protective factors in a low-income neighborhood near the university. The next semester, the health science students' data were used by urban planning students to advocate for neighborhood safety improvements. Each "hand off" from one discipline to another was integrated into the curriculum, making the process of interdisciplinary collaboration for public health a part of the learning experience. The resulting environmental changes—speed bumps, lights, and neighborhood clean-up—were convincing evidence of the power of collaboration for students and faculty alike.

THE FAMILY SCIENCE FAIR— LA FERIA DE CIENCIAS FAMILIAR

A Health Disparities Service Learning Collaborative grant and support from Community-Campus Partnerships for Health facilitated another public health collaboration across diverse academic units. Working as an interdisciplinary team, undergraduate students from health science, Mexican American studies, education, and biology work together with a local elementary school to plan, host, and evaluate annual Family Science Fair Workshops. The immediate goals of the project are to demystify the districtwide fifth-grade science fair assignment for parents, most of whom are recent immigrants from Mexico or Central America, and to provide technical assistance to parents who then help their children with experiments and poster presentations. The project's broader public health goal is to address disparities in access to information, participation, and civic engagement that are associated with well-documented

health and health care disparities in that neighborhood. Framing the activity as a public health intervention directs student reflection to the relationships among information, confidence, behavior, and community health, particularly for new immigrants, and the ways in which people are included or marginalized from the organizations and institutions of their communities. Working side by side and in the community, students experience the interface and reciprocity of their own disciplines and the public health.



Opportunities for smaller-scale collaboration on public health issues abound in any university or community setting, particularly through fieldwork, internships, or service learning. For example, English or graphic arts majors might work on communications material for the local diabetes coalition; Spanish or Chinese majors might help translate outreach or education messages for the county environmental health program. Kinesiology students might lead physical activity classes at after-school programs designed to address the obesity epidemic; anthropology students might develop oral histories of people living with HIV; political science students

might intern with a local politician working on public health issues. Business students might assist community-based organizations with business plans or marketing materials. The possibilities are endless and exciting.

ESTABLISHING UNDERGRADUATE PUBLIC HEALTH CURRICULA WITH OR WITHOUT A GRADUATE PROGRAM

It may seem easier to introduce opportunities for undergraduate public health education in institutions with graduate public health schools or programs. Certainly, such settings have faculty with professional expertise, library resources that support public health inquiry, and the required network of community partners and field sites. They also have local alumni who work in the field and graduate students who can support both faculty and students. However, these units may struggle with faculty bias against undergraduate instruction, lack of experience with undergraduate students, low tolerance for the administrative bureaucracy of undergraduate education, and resources restricted to activities that support their accredited graduate programs.

Entering the world of undergraduate instruction can be daunting, enlivening, and everything in between. In our experience, we needed an intellectual hook (the AAC&U initiative), professional legitimacy (the Association for Prevention Teaching and Research's leadership), an administrative nudge (the mandate to increase enrollments), and resource support (small grants to facilitate collaboration). What we gained were new colleagues across the campus, new opportunities for collaborative research, greater visibility within our institution, and the energy, talents, and twenty-first-century sensibilities of undergraduate students.

Institutions without graduate public health programs have a different set



of challenges and opportunities when seeking to introduce undergraduate public health curricula. However, national, professional, and local resources can support the work of campus visionaries who see the possibilities and simply need partners.

The material developed from the consensus conference, particularly the curriculum guides, offer rationale, intellectual structure, and practical tools for establishing general education courses, minors, and certificate programs that center the values and intellectual rigor of public health inquiry. The resources available at www.teachpublichealth.org and the Community-Campus Partnership for Health (www.ccph.org) provide additional tools and resources that seamlessly interface between professional practice and undergraduate education.

Local public health departments, community-based organizations, and foundations similarly provide opportunities to focus student learning on real-world application while offering possibilities for guest speakers, advisory board members, and

internship preceptors. It will be important for universities without public health programs to make sure that their libraries have the key public health journals, that faculty are members of the key public health professional organizations, and that students have opportunities to participate in the conferences, scholarships, mentoring, exchange, and networking that occur at regional and national meetings.

CLOSING THOUGHTS

Our efforts to introduce and then infuse the public health imagination beyond our masters in public health program have shown us that this perspective is rich with the dualities that enliven liberal education. The public health perspective also speaks to the concerns and sensibilities of today's undergraduate students. Private troubles and public issues (Mills 1959), urgency and patience, individual and social responsibility, risk and investment, local action and global impact, sustainability and innovation, outrage and hope—these are all recurring themes in the history of public

health and the very twenty-first-century concerns of our undergraduate students. Whether in a small college or comprehensive university, public health inquiry embedded in liberal education is rich with lively and important possibilities. ■

REFERENCES

- Albertine, S. 2008. Undergraduate public health: Preparing engaged citizens as future health professionals. *American Journal of Preventive Medicine* 35(3): 253–257.
- Albertine, S., N. A. Persily, and R. Riegelman. 2007. Back to the pump handle: Public health and the future of undergraduate education. *Liberal Education* 93 (4): 32–39.
- Cashman, S.B., and S. D. Seifer. 2008. Service-learning: An integral part of undergraduate public health. *American Journal of Preventive Medicine* 35(3): 273–278.
- Gebbie K, L. Rosenstock, and L. M. Hernandez. 2003. *Who will keep the public healthy? Educating public health professionals for the 21st century*. Washington, DC: National Academics Press, 144.
- Mills, C.W. 1959. *The sociological imagination*. New York: Oxford University Press.
- Riegelman, R.K., S. Albertine, and N. A. Persily. 2007. *The educated citizen and public health: A consensus report on public health and undergraduate education*. Council of Colleges of Arts and Sciences.
- Council on Education for Public Health. 2005. *Ac-*

AAC&U's 2010 Annual Meeting

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A session on “The Educated Citizen and Public Health,” featuring Howard Koh, Assistant Secretary for Health in the Department of Health and Human Services, formerly the Harvey V. Fineberg Professor of the Practice of Public Health at the Harvard School of Public Health (invited)

Pre-Meeting Workshop on Wednesday, January 20, 2:00–5:00 pm

“Undergraduate Public Health Studies: Integrative Strategies, Curricular Frameworks, and Ongoing Networks”



January 20–23, 2010
Washington, DC



An Approach to Development of a Public Health Minor

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Peggy Abels, health science programs, University of Nebraska–Kearney

The University of Nebraska at Kearney recognized as early as 2004 that there was reason to introduce public health study into the undergraduate curriculum. Faculty and administrative leaders observed that threats to public health had become increasingly compelling and urgent. Once-eradicated illnesses had begun reappearing; new diseases were emerging. In view of globalization and global disparities in health care, and such realities as, for example, widespread misunderstandings of the benefits of immunizations, we concluded that this trend is likely to continue. In the United States, life expectancy now ranks just twenty-fifth of thirty-seven developed countries. Obesity levels have reached the highest ever recorded here, with approximately 65 percent of the population overweight. Obesity increases the risk of many chronic illnesses and adds stress to the health care system. We became concerned about the education of health care workers. A number of studies make the case that public health workers in the United States need enhanced field-based professional training. We began to hear of a public health workforce shortage. Faced with these realities, we decided to join the growing numbers of health care workers, educators, and business executives who understand the need to know more about and do more on behalf of public health. In short, we identified a societal need and took steps to be responsible.

Our local situation also presented incentives. The University of Nebraska at Kearney has a long history of providing quality undergraduate education for a variety of health professions. A program in public health would expand opportunities and complement existing programs. In addition, the committee organized to explore and plan recognized that with more than five hundred pre-health-science majors on our campus, we could add a valuable option to career choices. In light of the state of Nebraska's decision to use tobacco settlement funds to create local public health departments across the state, we saw an immediate workforce need for education in public health. We therefore decided to move ahead promptly.

In fall 2007, we designed an interdisciplinary minor in public health, housed in the Health Sciences department. The minor is based on an arts and sciences model for universities without public health schools or programs, as discussed in the consensus report published by the Council of Colleges of Arts and Science (CCAS) (Riegelman, Albertine, and Persily 2007). This model would allow us to reach the widest possible range of students.

Our success thus far in developing and implementing the interdisciplinary minor on our campus prompts us to offer a few insights into the process. We hope such insights will make the adventure a little easier for those developing a minor at a university or college that does not have a public health school or program.

Our initial planning began with goal setting. We had the good fortune to receive support for the new initiative from central administration of the university and were able to add a faculty line in public health. A physician with public health experience took the position and became instrumental in developing the plan as we started to lay out our goals. Among the many possible sources of expertise, a new hire worked well for us.

We set out to prepare students to be better informed consumers and advocates, and leaders of good health practices. Students would also gain skills and knowledge, we reasoned, to understand and participate effectively within the health care economy and have the wherewithal to approach and influence health care policy and regulations. We were intrigued by the idea of educated citizenship, as the Institute of Medicine of the National Academy of Sciences recommends (Gebbie, Rosenstock, and Hernandez 2003). We therefore developed our minor with the goal of citizenship first. In addition, an interdisciplinary public health minor would add a new dimension to students' major degree work, whatever the field, and could provide job opportunities for our graduates. We hoped frankly that students would discover an active interest in



public health and wish to pursue advanced degrees in the field.

Wanting not to work in a vacuum, in 2006 we decided to conduct an online search of courses offered in minor programs at other colleges and universities. There was limited data since most existing programs offered an undergraduate major in public health. We had nothing close to the resources, staffing, and depth available in a major program. Enough information on minors emerged, however, for us to see patterns and commonalities among existing programs. Almost all minors required a minimum of three core courses: introduction to public health (Public Health 101), epidemiology (again a 100-level course), and statistics (any level).

We then met with faculty from many departments, including biology, health science, chemistry, exercise science, business, economics, marketing, and sociology, as well as other disciplines. Knowing our campus culture, we saw wisdom in hearing our colleagues' views of curriculum and content for the twenty-four credit hours in the minor. Navigating the competing interests of different departments was certainly a cross-disciplinary challenge. The enthusiasm each faculty member brought was encouraging, but the

competition added to the difficulties of developing an interdisciplinary program that would meet our broader goals.

Gathering input from the faculty across disciplines, we generated a list of possible required courses. As we expected, the list exceeded the twenty-four hours needed to complete a minor and offered no opportunity for electives. That meant we had to rethink the concept of required courses. We decided to limit requirements to the three courses most commonly offered at other undergraduate institutions: Public Health 101, Epidemiology 101, and statistics. The nine-credit-hour limit allowed for greater inclusion and input from a variety of departments, creating the interdisciplinary approach the committee intended. Departments appreciated the opportunity to suggest courses from their respective areas as electives. They wanted a degree of ownership of the project. The cross-disciplinary buy-in settled, the committee decided to house the new interdisciplinary minor in the department of health sciences (HSCI).

The core courses were ultimately approved through governance as submitted. Those courses are listed in table 1. The CCAS consensus report was not yet available for comparison and review when we began this work. One concern in the approval process was whether the epidemiology course should be taught at the 100 level

or a higher level. Wherever the course was placed, we were determined that it would meet the recommendation by the Institute of Medicine to allow all students the opportunity to gain education in the field of public health. In addition, the epidemiology course would help educate students from a variety of disciplines on scientific method in a framework of public health. The course would also meet several LEAP guidelines for engaging students in learning that involves quantitative literacy, as well as increasing their understanding of civic responsibilities.

Once we chose the core courses, narrowing the field of appropriate electives was the next step. With so many possibilities, we found this a challenging task. We wanted all students to earn a similar public health minor while at the same time having flexibility to develop interests in topic areas that would benefit their majors.

Our review of courses offered at the university, as well as previous discussions with faculty from several departments, generated a new list of possible electives. Elective coursework in natural science, business, wellness, nutrition, social science, and psychology would be required to give students an overall look at the interdisciplinary aspects of public health. The elective courses fell into four general groups: (1) natural science, (2) business and management, (3) nutrition and wellness, and (4) related topics including

Key for abbreviations in tables 1 and 2:

BIOL:	biology
BMGT:	business management
BMIS:	marketing and management information systems
BMKT:	marketing and management information systems
CHEM:	chemistry
ECON:	economics
FSID:	family studies and interior design
HSCI:	health sciences
PE:	health, PE, recreation, and leisure studies
PSY:	psychology
SOC:	sociology
SPAN:	Spanish
STAT:	statistics

TABLE 1

Required courses for the public health minor

Required courses: minimum nine hours

Course Title		Credit Hours
HSCI 150	Introduction to Public Health	3
BIOL 110	Principles of Epidemiology	3
Take one statistics course:		
STAT 241GS	Elementary Statistics	3
PSY 250	Behavioral Statistics	4
BMGT 233	Business Statistics	3
BIOL 305	Research Analysis	3



TABLE 2

Elective courses for the public health minor

Take at least one course from each of the following groups for a minimum of fifteen credit hours.

Group 1: NATURAL SCIENCE

Course Title		Credit Hours
BIOL 211GS	Human Microbiology	4
BIOL 215GS	Human Physiology	4
BIOL 225 /226	Anatomy and Physiology	8
BIOL 401	Principles of Immunology	4
BIOL 440	Infectious Disease	4
BIOL 461	Human Genetics	3
BIOL 465	Physiology	3
BIOL 468	Parasites	2
CHEM 145GS	Introductory Chemistry	4
CHEM 150GS	Introduction to Organic and Biochemistry	4
CHEM 160GS	General Chemistry	3
	and CHEM 160LLab	1
CHEM 161 GS	General Chemistry	3
	and CHEM 161L Lab	1
CHEM 300	Environmental Chemistry	4
CHEM 301	Techniques of Chemical Analysis	4
CHEM 351	Biochemistry	4

Group 3: NUTRITION AND WELLNESS

Course Title		Credit Hours
FSID 110GS	Nutrition	3
PE 160GS	Healthful Living	3
PE 229	Wellness Interventions	3
PE 468	Public Health Aspects of Physical Activity	3

Group 2: BUSINESS AND MANAGEMENT

Course Title		Credit Hours
ECON 410	Health Care Economics	3
BMGT 355	Organizational Behavior	3
BMGT 301	Principles of Management	3
BMGT 380	Human Resource Management	3
BMKT 300	Principles of Marketing	3
BMKT 336	Services Marketing	3
BMKT 435	Marketing Research	3
BMKT 438	Consumer Behavior	3
BMKT 450	Pharmaceutical Marketing	3
BMIS 282	Decision Support Software, Decision Making, and Databases	3
BMIS 302	Principles of Management Information Systems	3

Group 4: RELATED TOPICS

Course Title		Credit Hours
FSID 351GS	Marriage and Family Relationships	3
FSID 150GS	Lifespan Development and the Family	3
FSID 450	The Aging Adult	3
FSID 481	Cross-Cultural Family Patterns	3
PSY 192	Death and Dying	1-3
PSY 203GS	General Psychology	3
PSY 230GS	Human Development	3
PSY 462	Adult Development and Aging	3
BIOL 311	Bioethics	3
SOC 250GS	Anthropology	3
SOC 462	Sociology of Health and Illness	3
SPAN 103	Spanish for Special Purpose-Medical Professionals	1-3
BIOL 325	Medical Terminology	1



family dynamics, sociology, and psychology. To keep continuity within the minor and provide depth to each student's work, we determined that each student should take one course from each category. For example, all biology students would be required to take a business course. Business majors would learn in a lab-based science course. Other majors across campus would also experience new coursework outside their major fields.

Each of the four groups or categories offered multiple courses from which to select. The four groups of electives are listed in table 2.

Permitting students a variety of choices in their electives allows flexibility so that students develop their own areas of focus in public health as well as satisfy curiosity about a topic relative to health. In addition, arranging courses in four general groups allows for easier modification (deletion or addition) of elective courses within each category by the public health curriculum committee while still maintaining a broad common outcome for students.

As we complete our first year of offering the minor, we will be making adjustments to the curriculum. Emerging national work has influenced our thinking. The CCAS consensus report was published after the minor had been through most of the approval process. We later participated in the July 2008 workshop sponsored by Association of American Colleges and Universities (AAC&U), the Association for Prevention Teaching and Research (APTR), and the Centers for Disease Control and Prevention (CDC), out of which came *Recommendations for Undergraduate Public Health Education* (AAC&U and APTR 2008). In addition, Kleinberg (2008) gave us insight into keeping a minor truly interdisciplinary by providing flexibility, spontaneity, and maintaining dependency on other departments. Using this information, we have been able to evaluate and adjust our curriculum.

One addition to the minor will be a separate course on global health, a three-hour

requirement, replacing statistics. Statistics (a 200-level course) will become an elective.

We expect epidemiology to be taught with significant health-related statistics, including odds ratio, risk ratio, attack rate, prevalence rate, mean, and central tendencies (with standard deviation). These particular calculations can be covered within the course. We considered this decision with care, mindful of the value of global health study and aware that *Recommendations* suggests that statistics be presented in an integrative way through quantitative reasoning in other courses. Global health will be taught at the 300 level; students will have taken Public Health 101, Epidemiology 101, and electives in the four groups. We are recommending the higher numbering of the course as well as prerequisites so that deeper and richer content can be explored.

Additionally, we will add an elective independent study course. The course will ask students to apply public health concepts to their major areas of study. The course will be flexible, allowing students to develop a project of interest. Independent study could involve research, service learning, or community-based volunteer work. A communication major might write a brochure or video that could be shared with elementary school students on a health topic (such as the importance of vaccines or how to clean a cut properly). A business major might join a nursing home administrator to determine how to budget for rehabilitation equipment. Biology students could design a research project on the quality of well water in rural homes located near feedlots or irrigated fields. Students may volunteer with local public health departments or other service-related programs. We will develop guidelines and assessments to maximize the experience. This elective should be ideal for students wishing to demonstrate integration of public health with their major to enhance their employment opportunities. In addition, students planning to continue in graduate or professional school might use

the research or service activities as part of their application.

During our first year, we have had students from many majors taking public health coursework. Some of these majors include biology, athletic training, exercise science, economics, business administration, family studies, and psychology. A number are preparing for medical school. Many students are taking public health courses to complete the minor. Currently the number of students in the minor indicates that it is one of the most popular on campus (the others being biology, health science, marketing/management, and social work). Some students are taking courses in public health before pursuing a master's degree in the field or entering other areas of health care. Others have a general interest in the topic or see value in applying their learning personally, becoming healthier adults.

We are pleased to see the diversity of students and interests in the field and are confident we are meeting our goals. We expect continued growth in interest in public health at our university, and we know that the curriculum too must continue to evolve. Public health is a dynamic field. As the discipline changes, so will the courses and design of the minor. The challenge facing all such ventures is to maintain the interdisciplinary nature, flexibility, and dependency on other departments while staying true to the goals of the program. ■

REFERENCES

- Gebbie, K., L. Rosenstock, and L. M. Hernandez. 2003. *Who will keep the public healthy? Educating public health professionals for the 21st century*. Washington, DC: National Academics Press.
- Kleinberg, E. 2008. Interdisciplinary studies at a crossroads. *Liberal Education* 94 (1): 6–11.
- Riegelman, R. K., and S. Albertine. 2008. *Recommendations for undergraduate public health education*. Washington, DC: Association for Prevention Teaching and Research.
- Riegelman, R. K., S. Albertine, and N. A. Persily. 2007. *The educated citizen and public health: A consensus report on public health and undergraduate education*. Williamsburg, VA: Council of Colleges of Arts and Sciences.



The Disappearing Glaciers of Kilimanjaro— Conducting Collaborative Undergraduate Research on Africa’s Tallest Peak

► **Matthew V. Bender**, assistant professor of history, The College of New Jersey
Beatrice Kwok, senior student, The College of New Jersey
Tamra Wroblecky, senior student, The College of New Jersey

In May 2006, former Vice President Al Gore leaped from the political podium to the big screen, starring in his documentary *An Inconvenient Truth*. This film painted an ominous picture of the implications of global climate change, and offered a scathing critique of government policies toward carbon emissions. Perhaps the most vivid image it presents is the recession of the snows of Africa’s tallest peak, Mount Kilimanjaro. For the past 11,000 years, the top of the mountain has been covered with a series of massive glaciers, giving it a distinctive white cap. In the past century, this cap has shrunk in size by nearly 88 percent. Lonnie Thompson, glaciologist at The Ohio State University, predicted in 2002 that the glaciers will vanish entirely by 2015 or 2020, the result of global warming (Thompson et al. 2002). He and other scholars have since debated whether the phenomenon is solely due to human-induced climate change, or to factors such as increases in solar radiation, decreasing precipitation, or mountain-side deforestation (Kaser et al. 2004; Mölg et al. 2008).

Though the disappearing glaciers of Kilimanjaro have gained the attention of geologists and climatologists interested in its possible global implications, little attention has been paid to those whose lives will be most immediately affected. The mountain is home to more than 800,000 people, most of whom are Chagga-speaking farmers living on its lower slopes. These individuals have long depended on the mountain for their livelihoods. Water from the mountain’s numerous rivers and streams supports everything from irrigation of crops such as bananas and coffee to cooking and sanitation. The ice cap has long been considered the source

of these waters and in turn the people’s prosperity, and to this day remains central to culture and religious beliefs. The likely disappearance of the glaciers thus raises questions concerning health and livelihood, and indeed the very identity of these mountain communities.

Last summer, I began a program of research aimed at filling many of the gaps in our understanding of how glacial recession will affect those living on Kilimanjaro. I had several aims. First, I wanted to explore the implications of glacial recession through the perspectives of the residents themselves, to bring a local dimension to a phenomenon largely discussed in global terms. Second, I wanted to situate the narrative I gathered within the broader historical experience of the mountain, a reflection of my training as a historian and my ongoing research on the history of water management on Kilimanjaro. Third, I wanted to use the project as an opportunity to draw connections between African studies, public health, and the study of climate change, in a way that could facilitate dialogue between disparate fields.

This project was particularly suited to The College of New Jersey’s growing initiative to involve students in faculty research, particularly in the humanities and social sciences. Thus, I recruited two undergraduate students—Beatrice Kwok and Tamra Wroblecky—to join me in the college’s summer student-faculty research program, the Mentored Undergraduate Summer Experience (MUSE). We proposed a nine-week program of research, with a five-week research trip to Tanzania for the purpose of conducting interviews and gathering data from local



archives, libraries, and newspapers, followed by four weeks at the college for transcription and data interpretation.

From the start, I considered Beatrice and Tamra to be full collaborators in the project. After a period of orientation, in which I familiarized them with the region, its history, its current problems, and the basics of Kiswahili (the national lingua franca) and Kichagga (the local language of Kilimanjaro), we worked together to devise a research program. We narrowed our focus to two sites: the town of Moshi and a region on the mountain slope called Kilema, both places where I previously conducted extensive research and retain numerous contacts. Then we isolated a list of stakeholders—mountain farmers, elders, teachers, secondary school

Tanzanian local buses, called daladalas, are largely converted minivans that run set routes at fixed fares. However, they depart when full (often in excess of twenty people and/or various forms of livestock), and therefore the trip could take anywhere between one and a half and three hours.

Once we arrived at our stop, we walked another thirty minutes—often longer as we struck up conversations with passers-by—to meet our local contact Aristarck ‘Stanley’ Nguma. Stanley, as he preferred to be called, is a retired schoolteacher and longtime friend. He assisted us in choosing specific individuals in the community to interview, and also worked with the students as a language interpreter and cultural liaison. Each day we sought to

week, felt confident enough in their skills to send them off with Stanley to conduct interviews on their own. At the end of each afternoon, we would return to Moshi, discuss the progress we had made and any preliminary conclusions we could draw, and prepare for the next day.

Most of our sixty interview subjects were men and women between twenty and seventy years of age, in occupations ranging from full-time farming and teaching to business and the trades. To widen our project to include younger respondents, we distributed a set of surveys based on our core research questions to nearly four hundred students—aged fifteen to twenty-one—at two public secondary schools. We also interviewed several of their teachers, in an effort to see how students’ responses might be influenced by the school curriculum.

Beatrice and Tamra considered our five weeks in Tanzania to be, in their words, “a life-changing experience.” Though both had some previous international travel experience, neither had ever traveled to, much less lived in, a developing country. They quickly adjusted to the differences in standard of living between the United States and Tanzania, and gained an appreciation for the richness of the local cultures. They learned the particular importance of greetings, especially in rural communities. As we walked from place to place, I encouraged them to smile and greet nearly everyone they saw with Kiswahili phrases such as “Habari gani” or Kichagga ones such as “Shimboni shavo.” Such expressions both helped the two to feel more at ease in a foreign setting, and also conveyed to those around us that we were friendly and interested (and, at the very least, not lost). This friendly rapport often yielded us interesting experiences and, in some cases, useful interviews. Beatrice and Tamra also learned to be cognizant of differences in culture. For example, a few

“This experience has not only broadened my global vision and ability to navigate an unfamiliar cultural landscape, but has also been the perfect stepping stone to prepare me for a career in the Foreign Service.”

—Tamra Wrobletsky

students, and people in the mountain-climbing industry—designed a set of core research questions, and from these devised sets of interview questions and surveys tailored for each group. On May 20, 2008, we departed for Tanzania.

On our arrival, the three of us settled in Moshi, using the Kindoroko Hotel as our home and base of operations. We adopted a five-day per week work schedule, dividing our time between the two sites. The days in Kilema were by far the longest. We awoke at 6:30 a.m., ate a quick breakfast, and then commuted via public transit from the bustling town to the lush mountainside farmlands.

Speak with between two and four people, often who lived several miles apart. We would sit down with them, exchange greetings, and—rather than ask a series of questions—attempt to start a conversation about the significance of the mountain in both the past and present, the importance of the glaciers, whether they were in fact receding, and—if the person indicated that they were—how this would affect the health of the local community. The first week, I acted as the leader of these discussions, and later would reflect with Beatrice and Tamra as to how the discussion went and why. I quickly increased their level of participation and, by the last



times we arrived for appointments, only to find that our prospective interviewee was nowhere to be found. Though frustrated at first, they quickly picked up that people on the mountain perceive time very differently than they do. Another example we came to know intimately was transport. Our daladala journeys to and from the mountain required not only tremendous patience, but also a high tolerance of discomfort. Rather than fixate on the deficiencies of our transport, Beatrice and Tamra found that it fostered a unique sense of community, and they used the opportunity to engage in conversations with those around them.

Beatrice and Tamra also thrived from the experience academically. For the very first time, they felt they were “practicing the art of being historians,” and found that they needed to translate the lessons they had received in the classroom into practices that would lead to success in the field. They learned that a field researcher must be a dynamic thinker, willing to improvise at a moment’s notice to take advantage of opportunities. During interviews, they learned how to recognize a potentially interesting remark made by their interviewee, and deviate from the standard question set in order to pursue that line of thinking. Likewise, they discovered the importance of rephrasing questions on the fly so that they might be more easily understood. As time passed, I noticed tremendous growth in their analytical abilities, and they took great enjoyment in making unexpected discoveries.

I also noticed growth in my own thinking. Having traveled to Kilimanjaro four times in the past six years, and spending over a year and a half there, I had much more familiarity with the region and its peoples than my students. Travel with them, however, allowed me to experience the mountain through their eyes. I found myself thinking about numerous topics in different ways, asking questions I had not

previously asked, and in turn I feel it sharpened my overall approach to field research.

Once we returned to New Jersey, we turned our attention from data collection to transcription and interpretation. This work is ongoing, as is the project as a whole, but thus far we have noticed very revealing patterns. First, we discovered that among the general population, there is widespread acknowledgement of glacial recession, but understanding of the phenomenon depends largely upon the age of the respondent. Younger people were more likely to cite lessons learned in school, while elders relied upon their own observations of the mountain’s peak over time. Some even indicated that they had learned of glacial recession through Swahili-language media, including television, radio, and newspapers.

“The journey to Tanzania forced me to let go of the comforts of home, opening my eyes to a world beyond my familiar surroundings; it was an irreplaceable experience that gave me the opportunity to grow both academically and personally.”

—Beatrice Kwok

We were not surprised that people would recognize the glaciers shrinking over time, since these changes are readily visible to the naked eye. What we found revealing is how people understand its cause. They almost unanimously claimed that a century of deforestation on the mountain’s slopes was the key factor, with some even citing various aspects of forestry policy during the German and British periods of colonial occupation. This response thus situates glacial recession within the historical experience of the mountain, and conceives of it as a local, rather than a global, event. It is

also striking in that it mirrors the work of some scholars who have asserted that deforestation on the mountain’s slopes could be a contributing factor to glacial recession (Duane et al. 2008). Regardless of accuracy, it is an interesting coincidence that mountain farmers and some academics are reaching similar conclusions. I feel this example illustrates the importance and potential value of local knowledge and perspective, and will serve me well in teaching its importance to students. Our school-age respondents and those in the mountain-climbing industry also cited human-induced global warming as another contributing factor. Even when they did so, though, they stressed the importance of local factors, such as pollution by industries in Moshi and elsewhere in Tanzania.

Our findings also indicate that the people believe glacial recession threatens the local environment, with potentially devastating implications for public health. Smaller glaciers, they feel, are leading to warmer temperatures, less rainfall, and less water in streams, rivers, and irrigation furrows. These changes, in turn, will lead to reduced crop yields—especially for bananas and coffee—as well as increased incidence of waterborne diseases like typhoid. Scientific data seems to indicate that these resources will be harmed little by glacial recession, as most water used by the people comes not from glacial



melt but rather from precipitation in the alpine forests. Nonetheless, these fears are certainly widespread. Those in the mountain-climbing industry focus on the importance of the glacier as a tourist draw, and fear that fewer people will visit a Kilimanjaro without a white cap. Though expressions of fear focus on health and livelihood, the greatest potential loss is likely to local identity. For generations, the people have looked to the white cap of the mountain as a beacon for their people, a place of deep cultural and spiritual significance. Its disappearance could provoke a distinct challenge to how people think of themselves. Anxiety is so strong that, for many people, it is unthinkable that the glaciers could ever disappear entirely. As

one respondent said, “if the glaciers disappear, it will be the end of our life.” Another went even further, saying that without the glaciers “you will find no life. No Chagga at all. Kilimanjaro will perish. Tanzania will no longer be known to the world.”

Even for those who accept their complete disappearance as a real possibility, many refuse to give up without a fight. All across the region, local government agencies and the Kilimanjaro National Park are promoting the planting of trees, in hopes that forestation will help to stop glacial recession, and maybe even help restore the glaciers to their former size. For these initiatives, local leaders hope to find support from international agencies and nongovernmental organizations. In the

words of one local official, “Kilimanjaro is not only for Tanzanians or Chagga people. It is a worldwide precious thing. It should be saved.”

Thus far our conclusions are preliminary, and there is definitely much more work to be done. Over the next few years, I plan to continue the program of research, hopefully recruiting other students, gathering more respondents in Kilema and Moshi, and extending to other regions of the mountain. This will enable me not only to introduce the topic in my forthcoming book manuscript, but also to develop it as an independent project. This line of research has the potential to illustrate the importance of local knowledge in broader discussions of issues such as global climate change, as well as to emphasize the importance of interdisci-

plinary work involving fields as diverse as public health, climatology, and history. Whether the conclusions reached by the peoples of Kilimanjaro match the current trends in scientific scholarship is irrelevant. They are the ones who will experience the phenomenon most readily, and only by understanding their views and opinion will academics and policy makers be able to introduce forms of knowledge that prove useful. For Beatrice and Tamra, who are about to enter their senior year, the experience of working in the field has helped to shape their growth as scholars. They have a new appreciation not only for field research and interdisciplinary work, but also for their place in the world. In the future, I see faculty-student collaborative research programs such as ours rising in popularity, in turn allowing us faculty to better serve not only our students, but also our own programs of research. ■

REFERENCES

- Bender, M. V. 2006. Water brings no harm: Knowledge, power, and practice on Kilimanjaro, Tanzania 1880–1980. PhD diss, The Johns Hopkins University.
- Duane, W. J., N. C. Pepin, M. L. Losleben, and D.R. Hardy. 2008. General characteristics of temperature and humidity variability on Kilimanjaro, Tanzania. *Arctic, Antarctic, and Alpine Research* 40: 323–344.
- Kaser, G., D. R. Hardy, T. Molg, R. S. Bradley, and T.M. Hyera. 2004. Modern glacier retreat on Kilimanjaro as evidence of climate change: Observations and facts. *International Journal of Climatology* 24 (3): 329–339.
- Mölg, T., D. R. Hardy, N. J. Cullen, and G. Kaser. 2008. Tropical glaciers, climate change, and society: focus on Kilimanjaro (East Africa). In *Darkening peaks: Glacier retreat, science, and society*, eds. B. Orlove, E. Wiegandt, and B. Luckman, 168–182. Berkeley: University of California Press.
- Moore, S. F., and P. Puritt. 1977. *The Chagga and Meru of Tanzania*. London: International African Institute.
- Thompson, L. G., E. Mosley-Thompson, M. E. Davis, K.A. Henderson, H. H. Brecher, V. S. Zagorodnov, T.A. Mashiotta, P. Lin, V. N. Mikhalenko, D. R. Hardy, and J. Beer. 2002. Kilimanjaro ice core records: Evidence of Holocene climate change in tropical Africa. *Science* 298 (5593): 589–593.





Undergraduates Are the New “Partners” in Public Health

► **Ruth Gaare Bernheim**, director, University of Virginia Masters of Public Health Program
Lilian Peake, health director, Thomas Jefferson Health District, Virginia

“Who Will Keep the Public Healthy?” Undergraduate students have a meaningful role! During the recent outbreak of the swine/H1N1 influenza, for example, University of Virginia’s Laura McLaughlin, a rising fourth-year undergraduate human biology major, was ready for action. Having taken a number of public health courses, she responded to a request from health district epidemiologist Elizabeth Davies for help on the growing need for public education about H1N1. Laura is now gathering information on flu prevention for summer camps and fitness centers to ensure that adults and children practice healthy habits.

As a dynamic field of study integrating numerous academic disciplines, public health is attracting the energy and commitment of undergraduate students across the nation. Students are drawn to the real-world, problem-solving opportunities for applied learning in which they can use intellectual and practical skills, and express commitments to social justice. Public health officials, who often turn to partnerships to provide additional expertise, staff, and resources, are likewise preparing undergraduates to be new partners through field placements and class projects.

Health department officials at Virginia’s Thomas Jefferson Health District and faculty members at the University of Virginia Master of Public Health Program have

developed a partnership over the last four years that helped prepare Laura McLaughlin for her current role. It began in 2006, when public health officials received grant funding to teach an introductory undergraduate course on community public health.

Successful public health partnerships with undergraduates such as this one require several key elements: student course preparation and skills; clear learning outcomes and field placement objectives; and close faculty mentoring and participation. Laura’s course preparation included not only an introductory course on public health, but also courses on qualitative research methods, including cultural literacy, and health economics and public health data analysis using SPSS. Faculty members currently are developing measurable learning objectives to maximize the educational benefits for students.

Laura McLaughlin has gained much experience in the day-to-day work at the Thomas Jefferson Health District: “The goal of the program I am working on is to equip those who are likely to be in contact with individuals positive for the flu with the proper safety knowledge and equipment. I have discovered that this program is incredibly important, as many people (much as I originally was) are unaware of the differences between surgical masks and respirators and the fact that in many situations a surgical mask does not adequately protect against illness.”

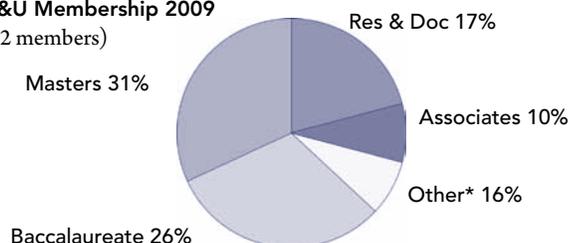
Laura also has new insight about public health in general: “Upon starting my work with the Thomas Jefferson Health Department, I assumed that health officials were testing patients so they would know whether they had H1N1. However, upon discovering that only select individuals who met very strict criteria were being tested, I realized that this was not entirely the case. While public health officials do use the results of these influenza tests to advise patients about appropriate treatment, their goals and objectives in testing are not about establishing individuals’ diagnoses, but rather are about the virus itself. As it is a new virus, public health officials are striving to learn about how it behaves, which will ultimately inform the recommendations they make to protect the public at large. When the outbreak was first identified, the Virginia Department of Health’s recognized criteria for testing included the following questions: Is the virus in Virginia? Is it transmitted from person to person? After affirming both of these questions, the motives for testing shifted to determining if the virus will change, if it will become more virulent, if it will undergo genetic changes, how it will affect some populations particularly vulnerable populations such as young children and pregnant women. It was only with this firsthand experience that I have been able to truly internalize the purpose and unique perspective of public health.” ■

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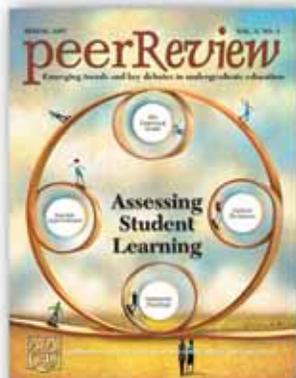
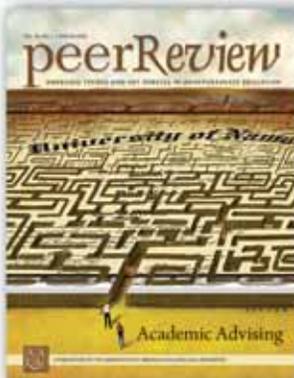
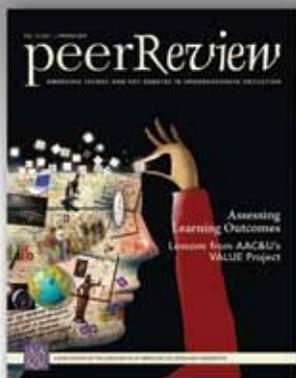
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