

UNC's Gillings School:

A rich and varied undergraduate program with many unique features

One of the most distinctive aspects of the Bachelor of Science in Public Health (BSPH) program at UNC's Gillings School of Global Public Health is the offering of specialized undergraduate public health programs, all of which have a separate and selective admissions process and relatively small student cohorts. One of the many benefits of the approach is the impressive postgraduate placement of students.

Undergraduate public health degrees are available at UNC through the departments of health policy and management, nutrition, biostatistics, and environmental sciences and engineering.

Biostatistics

The biostatistics BSPH at the Gillings School is believed to be the first undergraduate degree in biostatistics in the U.S. The first graduate, Dr. Maura Stokes, now senior research and development director at SAS Institute, received her degree in 1978.

In 1971, founding biostatistics chair Dr. Bernard Greenberg had chaired a self-study committee that made radical recommendations for the UNC public health school. Among them was a call to "institute baccalaureate programs to serve as a prototype."

At the time, undergraduate public health degrees were rare, so the recommendation was considered innovative.



Dr. Jane Monaco (center), director of undergraduate biostatistics studies at UNC, celebrates the 2012 commencement of Benjamin Buck (left, now in medical school at UNC) and Katherine Hunold (right, in medical school at University of Virginia).

The department took steps to develop an undergraduate degree in biostatistics or biometry as early as 1972, with faculty voicing that recruitment would be difficult but program graduates would fill a need.

Retired faculty member Dr. Craig Turnbull directed undergraduate biostatistics studies from 1976 to 2006, recruiting and advising more than 180 students. The second class of BSPH graduates, who finished in 1981, included eight students. Two of these later earned doctorates in the UNC biostatistics department.

The curriculum maintains a strong math component, an overlap with many master's-level courses and a strong focus on public health. Topics covered include statistical inference, SAS programming, regression analysis, nonparametric analysis, study design, mathematical statistics, linear algebra, survey sampling, epidemiology, environmental health and health policy.

Since 2006, Dr. Jane Monaco has served as director of undergraduate studies. At the end of the 2012-2013 academic year, about 270 students had entered the BSPH program. Currently, the department has 33 students pursuing the degree.

"Many of our BSPH students have gone on to do incredible things," Monaco said. "Many go immediately into top graduate programs in biostatistics, including ours! Many proceed directly to medical school or enter the work force – primarily in contract research organizations or health-care companies, where they immediately use the skills gained in our program."

In the last six years, BSPH graduates have gone to graduate programs (32 percent), medical school (28 percent), and employment in biostatistical/programming roles (30 percent). Within three years of graduation, more than 70 percent of recent BSPH students have entered graduate, professional or medical programs.

"The BSPH degree program is a real gem in our department, with a long and storied history," said Dr. Michael Kosorok, W.R. Kenan Jr. Distinguished Professor and department chair. "As far as we know, it is the oldest and finest such program in the U.S."

A BIOSRhythms article on the BSPH program is available here:
http://sph.unc.edu/files/2013/07/biosrhythms-dec.2012_web.pdf.

Environmental Health Sciences (Department of Environmental Sciences and Engineering)

The BSPH in environmental health sciences provides students with a fundamental grounding in basic and applied sciences for advanced scientific education, professional schools or careers in public health practice. BSPH graduates will be able to demonstrate a basic level of understanding in the fundamental sciences, describe the relationship between public health and environmental sciences and engineering, identify major environmental sciences issues, describe regulatory components that have shaped environmental policy and demonstrate written and oral communication skills related to environmental issues within a public health context.



Rising senior Mr. Andrew Koo is exploring his interest in policy this summer in a Congressional internship with the Energy and Commerce Committee's health subcommittee. "Applying to the Gillings School's BSPH program was one of the best choices I could have made during my time at Carolina, Koo said. "The curriculum has been engaging and has truly allowed me to tailor my education to my unique interests."

The department usually receives about 35 applications each year, and about 30 students are admitted. The ratio of female to male is 64:36, including about 38 percent minority students and 6 percent international students, with a mean age of 21 years and a mean undergraduate GPA of 3.6. Currently about 50 students are enrolled; the matriculating class size is between 20 and 29 students.

The Gillings School strives to integrate global content and approaches, aiming for every student's emergence from the School with an understanding of global health issues. Some environmental sciences courses are focused largely on global issues; others are designed so that global and local issues intertwine. Job opportunities post-graduation include graduate or professional education, teaching, consulting, service in the Peace Corps, and work with nongovernmental organizations.

Health policy and management

The BSPH program in HPM admits between 40 and 45 students each year (with about 80-90 students in the program at any given time). Students develop knowledge about the health and health care industries; skills in communication, teamwork, research, analysis, problem-solving, financial and information management, strategic planning, marketing, organizational structures and leadership; and professional behaviors.

HPM undergraduates participate in a number of projects that allow them to apply classroom knowledge and skills to real-world public health and health-care problems. Among recent projects are planning and conducting a program evaluation of an initiative aimed at improving access to care for N.C. residents; analyzing and making recommendations to clinical leaders on the improvement of patient safety; planning a hypertension patient education program for low-income visitors to the Student Action Coalition free clinic in Carrboro, N.C.; and consulting on ways to improve the patient care experience at a hospital and on providing a comprehensive tobacco cessation program for hospital patients and employees.

Students in the program are required to complete a 12-week, full-time internship in the summer between their junior and senior years. Students have been involved in health management at Johns Hopkins Hospital and UNC Family Medicine; in policy making at the Wounded Warrior Project and the Global Health Council; in research at the CDC and M.D. Anderson Cancer Center; in global health at ChildFund Senegal and IntraHealth; and public health at the Black Women's Health Imperative and the N.C. Division of Public Health, among other organizations.



A team of student leaders from the UNC Gillings School's health policy and management BSPH program make a lighthearted presentation to prospective students.

Among those who completed a survey, spring 2014 graduates obtained jobs in health-care consulting (40 percent), health management (12.5 percent) and public health/research (5 percent), or returned to graduate school (10 percent), professional school (7.5 percent) or entered service in Teach for America, Peace Corps or other agencies (7.5 percent).

"The number one strength of the program," one student said, "is the people. The faculty, staff and students are absolutely incredible. I was immediately humbled by the caliber of my cohort, the dedication of professors to the program and the field, and the work being done at the Gillings School. The second greatest strength: the opportunities to challenge yourself. Group projects, late-night and early-morning meetings, the quality of work expected by professors, the electives that are available...This program has challenged me to be a smarter and harder worker. The collaborative nature of the program is its incredible strength."

Nutrition

The BSPH in nutrition at the Gillings School introduces the undergraduate student to the science of nutrition in health and disease and to social and behavioral aspects of eating in the context of public and individual health. The curriculum offers a wide range of courses on the nutritional and epidemiological aspects of human diseases. A nutrition BSPH prepares students for graduate study in nutrition, medicine, pharmacy or dentistry, and for entry-level positions in public health or dietetics. It also allows students to participate in nutrition research projects or explore other related areas of interest.

Why is the nutrition BSPH important? Nutrition plays a major role in human health. Proper nutrition is essential for prevention and treatment of most common human diseases, including obesity, diabetes, cardiovascular disease and cancer. With the growing number of people who suffer from these diseases, nutrition has become a core discipline in medical and public health education and practice. Nutrition education also is needed to effectively fight malnutrition, still one of the leading causes of death in developing countries, especially among children.



Nutrition undergraduates including Alyssa Luck (second from left) and Pranati Panuganti (second from right) participate in The Market Place, a regular on-campus market at UNC that features international artisan goods and local foods in a vibrant market atmosphere. The market's goal is to promote global welfare, sustainability and healthy lifestyle choices.

There are 47 students currently in the program (14 males, 33 females, 13 percent minorities), including 25 students admitted in 2014.

"I've always been interested in the sciences," said Pranati Panuganti, candidate for the BSPH in nutrition in 2016, "but more importantly, I'm interested in how science be applied in the real world to solve problems, specifically in the realm of health care. That's what I found in nutrition: a science that allows me to apply the facts I learn in core science classes such as biology and chemistry to the maintenance of human health through an understanding of how diet and exercise affect the body's processes."

Outreach to high school and undergraduate students

The Gillings School of Global Public Health's Office of Student Affairs also is attuned to middle- and high-school students who are prime candidates for the School's baccalaureate programs. School personnel participate in presentations, events and other activities to encourage younger students with public health interests to explore the four areas of study available to them at the Gillings School. Throughout the year, School staff members and students attend class presentations about public health, panels focused on health careers and individual meetings with prospective students.

This summer, about 50 teens from across North Carolina were introduced to public health and UNC campus life, thanks to the Gillings School's 2014 Summer Public Health Symposium for High School Students. The symposium, funded by the School, the [Jesse Ball duPont Fund](#) <http://www.dupontfund.org/> and the [UNC Health Affairs Pipeline Partnership Initiative \(HAPPI\)](#), <http://unchapi.wordpress.com/> exposed students to the field of public health, introduced the School's BSPH programs, provided leadership development activities and offered training in group presentation skills. Read more about the group's adventures on the Gillings School website. <http://sph.unc.edu/sph-news/gillings-schools-summer-public-health-symposium-a-success-high-school-students-say/>



Participants in the Gillings School's 2014 Summer Public Health Symposium for High School cheered the opportunity to live and study on the UNC-Chapel Hill campus.

Thanks to the connections and support of alumnus Dr. Bill Jenkins, the School also is an academic partner with Project IMHOTEP, an 11-week internship made possible through a cooperative agreement between the CDC and Morehouse College's Public Health Sciences Institute. Jenkins, professor of public health sciences at Morehouse, is a founder of the program. The project, which provides training and research opportunities for minorities interested in the health professions, aims to increase knowledge and skills of juniors, seniors and recent college graduates in biostatistics, epidemiology, and occupational safety and health, and features two weeks of intense academic training at Morehouse College and nine weeks of hands-on public health research experience with experts at the Gillings

School. The hands-on work includes seminars, workshops, research support and consultation in data analysis, community service and other elements. This summer, the Gillings School hosted eight interns as they engaged in a variety of research projects. Imhotep was the architect who built Egypt's first pyramid. A poet, astrologer, priest and minister, he was considered the first doctor and a contributor to the field of public health.

The Gillings School is also involved with The Partners Training Program, a partnership between North Carolina Central University and the UNC Lineberger Comprehensive Cancer Center. The program aims to increase the number of undergraduates from North Carolina Central University (NCCU) and UNC-Chapel Hill who successfully pursue careers devoted to finding causes, cures and prevention strategies for cancer that disproportionately affect minorities, particularly African-Americans. To this end, leaders from NCCU and UNC Lineberger work together to lay groundwork for an inter-institutional training program for undergraduates who are motivated to pursue careers in basic cancer research and in public health. This summer, the Gillings School hosted five undergraduates from NCCU through the Partners program as they engaged in a variety of research projects, professional development and academic preparation over an eight-week period.

"Students from both programs this summer did phenomenally well on their final presentations, with twelve of them showcasing their various research projects," said Trinnette Cooper, MPH, CHES, coordinator for diversity programs and recruitment at the Gillings School. "Each of them developed as students, researchers and professionals. The research experiences were enriched by the dedication of the faculty and staff mentors, who provided rewarding academic and professional experiences for the students. Mentors' shared commitment to the students was evident in conversations with them, in their final presentations, and in their excitement to remain connected to UNC and the Gillings School."

Ms. Melanie Studer (HPM), Dr. Mirek Styblo and Ms. Joanne Lee (NUTR), Dr. Jane Monaco (BIOS) and Ms. Trinnette Cooper (Student Affairs) were instrumental in the collection of this information.

For more information about the BSPH and other programs at the UNC Gillings School of Global Public Health, see sph.unc.edu/gps.

Prepared by Linda Kastleman (August 2014)