

Students Casey Coutu (left) and Theresa Bakaitis Glover (center) make adjustments to a prosthetic leg worn by patient Stephen Fuller.



The Age of Bionics

UNIVERSITY TO OFFER MASTER OF SCIENCE
IN PROSTHETICS AND ORTHOTICS

BY KAREN HUNTER

South African sprinter Oscar Pistorius, a double amputee who wears custom-made running “blades” when racing, captured the world’s attention when he challenged officials for his right to compete in the 2008 Beijing Olympics. That’s the *Olympics*, not the Paralympics. Officials argued that Pistorius’s prosthetics gave him an unfair edge over able-bodied athletes. Eventually, he won the right to compete but missed the 400-meter qualifying time by a mere 0.7 seconds.

In forcing the world to reconsider “ability” versus “disability,” Pistorius’s story as the “fastest man with no legs” illustrates in the extreme just how far technology has pushed prosthetic devices beyond the wooden legs first whittled from barrel staves for amputees during the Civil War.

Innovation is offering dramatic benefits to people who require artificial limbs and to those who use orthotic, or supportive, devices because of weakened or injured joints and muscles. Bionic knees controlled by microprocessors allow patients to have a more normal gait. Braces equipped with Bluetooth devices send electronic signals to nerves. Prosthetic hands with individually powered fingers can pick up coins, type, and dial a cell phone.

Just as the technology has advanced, so has the challenge of training professionals in the prosthetics-and-orthotics field.

That’s where the University of Hartford comes in.

The Department of Physical Therapy and the Newington Certificate Program in Orthotics and Prosthetics (NCP) have developed a cutting-edge, two-year Master of Science in Prosthetics and Orthotics program that will provide academic, research, and clinic opportunities for prospective students.

“The move is a reflection of the expanded body of knowledge, skill set, and core competencies required,” says Catherine Certo, chair of the physical therapy department. “It is also the result of the management of complex medical pathologies and multiple diseases seen in today’s populations.”

Prosthetics and orthotics (P&O) professional organizations expect the number of patients using orthoses and prostheses in the United States to reach nearly 9.7 million by 2020. In 2008 the American Board for Certification in Orthotics, Prosthetics, and Pedorthics reported that only 5,538 practitioners were board certified.

Although the American Academy of Orthotists and Prosthetists reports that the employment rate is currently 100 percent for graduates of P&O educational programs in the United States, a 2006 “Workforce Demand Study” predicts that if practitioners continue to enter the field at the current rate, a number of factors—including aging baby boomers and an increased number of diabetics who have lost limbs due to their disease—could cause the demand for practitioners to overwhelm the supply.

Acknowledging the increased demands, the National Commission on Orthotic/Prosthetic Education in 2004 mandated that training programs in the field be elevated from postbaccalaureate certificates to master’s degrees by 2011 and that all new programs be offered at the master’s level starting in 2010.

Robert S. Lin, chief orthotist and prosthetist at Connecticut Children’s Medical Center in Hartford, Conn., and founder of NCP, approached the University in 2006 about developing such a graduate degree program.

“I had a long relationship with the University’s engineering school,” says Lin. “I approached Dean Lou Manzione, who was very enthusiastic, but when we looked at the curriculum for biomedical engineering, we didn’t find much crossover. When we looked at physical therapy, we found a good fit.”

The program will be taught on the University’s main campus and at Hanger Orthotics and Prosthetics, Inc., a manufacturer of prosthetic and orthotic devices in Newington, Conn. The interaction between physical therapy and biomedical engineering students will be a strong element for the clinical and research component of the program.

The first cohort will begin classes in the summer of 2011. The program will offer two paths. One will be the traditional master’s pathway, in which a prospective student with a bachelor’s degree applies to the two-year professional program. The other is a 3+2 program, in which students will earn a Bachelor of Science in Health Science and the Master of Science in Prosthetics and Orthotics in a five-year program. Both paths include a post-graduate, two-year residency requirement as a prerequisite for the board certification exams. ■