



From an early age, watching his older brother endure the childhood teasing and other disadvantages that come with wearing glasses, Daniel Savage decided he would one day try to find better ways to improve vision.

By pure serendipity, the Webster, NY, native grew up just a few miles from what he believes is the best possible place to pursue that dream.

Now a Ph.D. student at the Institute of Optics, Savage is about to undertake something that's never been done at the University of Rochester – a dual Ph.D. at The Institute of Optics and M.D. from the School of Medicine (MD-PhD Program)

By doing so, he hopes to improve vision at two levels: as a research scientist who can contribute new knowledge – and perhaps new technologies – that benefit mankind as a whole, and as a physician who can treat the specific, individual needs of patients. Ultimately he would like to apply both sets of skills in underdeveloped countries.

“It’s an incredible privilege and honor to be studying here at Rochester,” Savage added. “You have The Institute of Optics, which is one of the top, premier schools for optics. You have the Center for Visual Science -- what a hotbed that is for visual science. And you have the Flaum Eye Institute. You couldn’t ask for a better place. I could not do what I want to do anyplace else.”

The Medical Scientist Training Program, which has accepted Savage, has offered a federally funded dual M.D./Ph.D. program here for nearly 40 years to train physician-scientists. But the students most often involved from the River Campus have come from fields such as biology, chemistry and biomedical engineering. Those disciplines include classes that can help satisfy premedical requirements.

The MD-PhD option has not been tried before with The Institute of Optics. After meeting with M. Kerry O’Banion, Director of the Medical Scientist Training Program, Savage proposed a unique program of study.

“Daniel is embarking on something that is very unique; to my knowledge no other MD/PhD program in the country offers a dual degree in Optics and Medicine,” O’Banion noted. There are 80 such programs, 44 of which are supported by MSTP (Medical Scientist Training Program) grants.

Starting this fall, Savage will spend two years in medical school, take a break for two years to finish his optics Ph.D, return to medical school for two years, then seek a residency.

“A lot of people say that’s a long time to be in school,” says Savage, who entered the Optics Ph.D. program in 2010. “But I look at all the opportunities it opens up. Being in a Ph.D. program or a residency is really not a lot different than being in a job. Sure, it’s kind of a low paying job, but that’s a small price to pay for being able to do something that you love, something that provides such unique opportunities.”

After transferring to the University from Monroe Community College, Savage quickly became involved in optics research. Prof. James Zavislan, now Associate Dean of Education and New Initiatives for the Hajim School, helped him obtain a summer internship at Optimax Systems, a manufacturer of precision optics in Ontario, N.Y. He continued interning there throughout his undergraduate education – full time during the summer, part-time during the school year. He worked on a variety of research projects involving metrology and manufacturing processes.

As a Ph.D. student, Savage has become involved in research “that is not only exciting for me personally, but also has the potential to be high impact, positively affecting the lives of countless individuals.”

The project, a collaboration between Wayne Knox, Professor of Optics, Physics and the Center for Visual Science, and Krystel Huxlin, Professor of Ophthalmology, Neurobiology & Anatomy, Brain & Cognitive Sciences, and the Center for Visual Science, explores a novel application of femtosecond laser beams that could correct vision problems noninvasively, without the cutting involved in Lasik surgery.

“It sounds magical, but if this works out you could literally sit in a chair, look at a fixation point for a few minutes while we shine a special type of laser light into your eyes, and walk away with perfect refractive vision,” Savage said. It could even potentially be done outside the operating room. This could have enormous impact, not only in this country, but also in Third World nations where access to health care is limited.

“Giving people in underdeveloped countries glasses is a phenomenal thing to do, but they may lose them, or people may step on them,” Savage noted. “But with this technology, it might be possible to take a machine over to these countries and literally correct peoples’ vision very simply. It would be a very elegant solution.”

Savage, who was home schooled, says his religious faith has helped foster his desire to serve others. “I think a lot of people find that they are most happy in life when they’re not focused on themselves, but rather when they experience something bigger than themselves.” He likens it to gazing out over the Grand Canyon. “By helping other people, especially in medicine and through a research career, it’s very similar to that Grand Canyon experience. My faith and personal experiences have taught me that you can look out and help others without any thought of yourself, and derive great joy and purpose from that.”