MS Degree in Applied Optics

Delaware State University houses one of the region's premier research facilities in applied optics — the Center for Research and Education in Optical Sciences and Applications (CREOSA). Students in our Master's degree program in Applied Optics collaborate directly with CREOSA researchers, who conduct groundbreaking work in areas such as

- laser spectroscopy
- atomic and molecular optics
- optical interferometry
- biophotonics
- nanophotonics
- data mining

In this unusually robust research environment, Master's candidates work with faculty on team-based projects, while designing and executing independent, self-directed research. The program culminates in a research thesis and oral defense.

Professional Preparation

Master's degree candidates at Delaware State University engage in a full range of activities to prepare them for careers in academia, industry, and/or the nonprofit sector. These include

- conducting independent research
- working with state-of-the-art technology and instrumentation
- developing professional networks with other academic researchers
- establishing contacts with potential employers in industry

Faculty

Optics faculty at Delaware State are superior researchers and highly committed educators. Our professors spend many hours in direct, one-on-one interactions with students. They also are accomplished investigators engaged in high-level inquiries for major funders such as NASA, the Department of Defense, the National Science Foundation, and NIH.

Research and Experience

Established in 2006 through a National Science Foundation CREST grant, CREOSA conducts high-level research with applications in areas such as spectroscopy, atomic and molecular optics, biomedical imaging, homeland security, telecommunications, the environment, and computer science. Current research projects underway at the Center include

- Laser-induced Breakdown Spectroscopy
- Photothermal Lens Spectroscopy
- Optical Solitons
- Single-Molecule Spectroscopy
- Electromagnetically Induced Transparency and Slow & fast Light
- Optical coherence tomography
- Data Mining of Spectroscopy Data
- Nanophotonics

The Master of Science in Applied Optics will focus on the emerging areas of laser spectroscopy, biophotonics and nanophotonics which play a critical role in advancing technologies such as telecommunications, homeland security, computing, medical diagnosis,

environmental sciences and disease management and treatment.

In addition to placing particular emphasis on the emerging areas of nano- and bio-photonics, and student in this MS program will take part in many challenging and exploratory projects based on optical nanotechnology and its applications to aid the health related sciences.

Students in the MS on Optics Program will be required to complete a research thesis an oral defense of it. The MS in Applied Optics has a typical duration of two to three years for full-time students.

The foundations for the M.S. Program in Applied Optics — which was established in 2008 — were laid by the DSU Center for Research and Education in Optical Sciences and Applications (CREOSA). Given the interdisciplinary opportunities that optics presents, students in the MS Program in Applied Optics will have the same opportunities.

Interested students, researchers and engineers can obtain more information by contacting the DSU Department of Physics at 302.857.6659

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