

NEW ENGLAND COLLEGE of OPTOMETRY



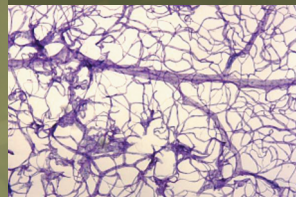
# Graduate Degree Programs

**MASTER OF SCIENCE  
IN VISION SCIENCE**

OD/MS Dual Degrees  
Stand-alone MS Degree

**OD/PhD DUAL DEGREES**

with Boston University



## Graduate Degree Programs

Students accepted into the graduate programs receive a broad background in vision science and strong training in research. These programs will provide graduates with enhanced career opportunities. Candidates develop skills that enable them to contribute new knowledge to the field, help them assess new scientific developments relevant to optometry and vision science, and enable them to be more competitive for residencies and academic or industry positions following graduation. The graduates of these programs have the potential to become intellectual leaders in the profession.

### MASTER OF SCIENCE IN VISION SCIENCE

New England College of Optometry offers a graduate program leading to a Master of Science (MS) in Vision Science degree. This program is available to qualified students (especially optometrists) who are interested in performing original research in vision science. There are two ways to earn this degree:

- **OD/MS Dual Degrees** Designed for optometry students who wish to earn a MS degree while studying for the Doctor of Optometry degree. The MS degree in the dual degree program is available to qualified students who are enrolled in the College's OD degree program.
- **Stand-alone MS Degree** Designed for candidates who wish to earn a MS degree without enrolling in the College's OD degree program. Qualified candidates must have a college-level background in science or a professional degree.

The MS program features graduate-level courses, seminars, an original research project, and completion of a thesis with a thesis defense. The OD/MS dual degree may be completed within the time frame of the four-year professional degree program and involves modifications to the course sequence in the OD curriculum. The stand-alone MS degree is usually completed in two years.

The Master of Science in Vision Science program is designed to develop the analytical thinking and problem-solving skills needed to be a successful scientist. The program emphasizes research in an area of vision science that is determined by the student's interests and the expertise of the graduate faculty.



research  
analysis  
discovery  
vision

## **CURRICULUM: AN OVERVIEW OF THE MASTERS PROGRAMS**

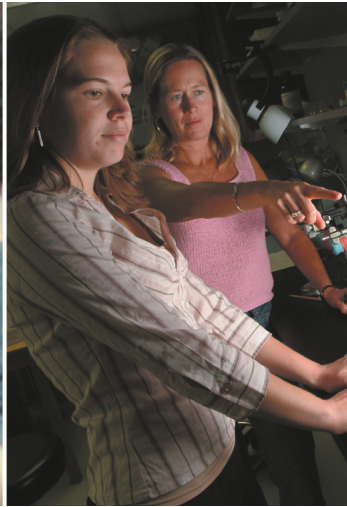
The Master of Science in Vision Science is designed to provide experience in vision research methodology through the development and execution of an original research project, and the completion and defense of a research thesis.

The curriculum is based on a total of 36.25 credit hours of study: 12.75 credit hours earned for dual degree courses are also included in the OD curriculum, 11 credit hours are graduate-level courses for MS candidates, and 12.5 credit hours involve the planning and execution of the research project.

### **DUAL DEGREE COURSES**

**Optics I; Theory and Methods of Vision Testing; and Cell Biology, Histology and Ocular Anatomy (total 11.5 credit hours):** These courses provide much of the necessary background in the major areas of research available to MS students. They are also required for the OD degree so OD/MS students receive dual credit. Students in the stand-alone MS program may be eligible for credit transfer or exemptions based on courses already completed before entering the MS program.

**Laboratory Research Survey (1.25 credit hours):** This course provides an overview of the basic areas of research conducted at the College. The graduate faculty give presentations on their research, including major hypotheses and findings, and representative research designs and procedures.



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### **MS DEGREE COURSES**

**Biostatistics and Experimental Design (3 credit hours):** This course covers the fundamentals of statistical design and data analysis in vision science.

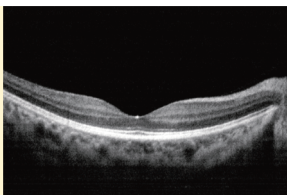
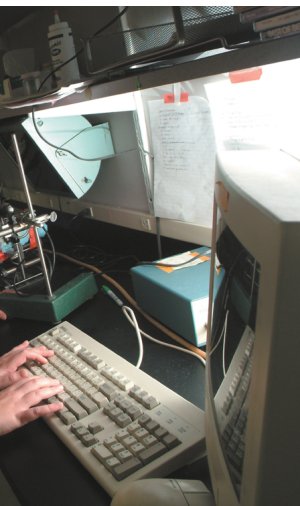
**Research Colloquia (total 2 credit hours):** These sessions are held throughout the year, and feature invited speakers chosen from an international group of researchers who lecture on a wide variety of topics. Graduate students read and discuss topical papers in advance of each lecture and meet with the guest speaker. Additional lectures are held on research ethics and accepted procedures for the use of human and animal subjects.

**Graduate Research Seminars (total 6 credit hours):** The seminars cover the four core content areas available to MS students for their research projects. These areas represent graduate faculty research interests:

- Biomedical Research in Vision
- Visual Optics and Advanced Imaging
- Visual Neurophysiology and the Development of Vision
- Special Topics in Eye Growth, Emmetropization and the Development of Myopia

### **MS RESEARCH CREDITS**

**MS Research (total 12.5 credit hours):** This is the major emphasis of the program and involves the development, execution, and completion of a MS thesis.



## GRADUATE FACULTY FOR THE MS DEGREE PROGRAMS

New England College of Optometry supports an active research program in the vision and biomedical sciences that is diverse in its investigations and has far-reaching implications. Faculty and research facilities rival those of university-based schools of optometry. Profiles of the Graduate Faculty and their research interests may be viewed online ([www.neco.edu](http://www.neco.edu)).

**BAHA ASEFZADEH, OD, MS** *Ophthalmic Imaging in Eye Diseases (Department of Veterans Affairs, Boston)*

**ALEX BOWERS, MCOptom, PhD** *Vision Rehabilitation Research (Schepens Eye Research Institute, Harvard Medical School)*

**TONY CAVALLERANO, OD** *Diabetes, Retinal Disease and Telemedicine (VA Boston)*

**NANCY COLETTA, OD, PhD** *Visual Optics, Retinal Imaging, Myopia and Night Vision*

**NYSSA CONNELL, OD, MS** *Ophthalmic Imaging in Eye Diseases (Department of Veterans Affairs, Boston)*

**LI DENG, PhD** *Statistics, Experimental Design, Longitudinal Data Analysis and Modeling*

**BARRY FISCH, OD** *Clinical Optometric Trials and Ophthalmic Imaging*

**HAIYAN GONG, MD, PhD** *Hemodynamics of Aqueous Humor Flow (MIT & Boston University Medical School)*

**JANE GWIAZDA, PhD** *Development of Vision and Myopia in Humans*

**ELISE HARB, OD, MS** *Pediatric Optometry, Amblyopia, Ophthalmic Imaging*

**JI-CHANG HE, PhD** *Visual Optics and Visual Performance*

**STEVEN KOEVARY, PhD** *Prevention of Autoimmune Diseases, Ocular Drug Delivery*

**BARRY KRAN, OD** *Pediatric Vision, Cortical Visual Impairment*

**DANIEL M. LABY, MD** *Sports Vision (Ophthalmology, Harvard Medical School)*

**D. LUISA MAYER, PhD** *Clinical Testing of Pediatric Vision; Pediatric Low Vision*

**GLEN McCORMACK, OD, PhD** *Accommodation, Convergence, and Aniseikonia*

**BRUCE MOORE, OD** *Refractive Development in Children*

**DEBORA NICKLA, PhD** *Animal Models of Myopia*

**ATHANASIOS PANORGIAS, PhD** *Color Vision and Retinal Electrophysiology*

**ELI PELI, OD, MS** *Low Vision and Image Enhancement (Schepens Eye Research Institute, Harvard Medical School)*

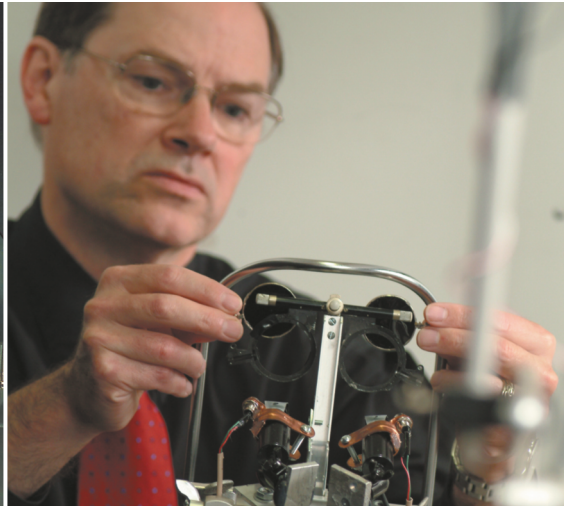
**JEFFREY RUBERTI, PhD** *Corneal Tissue Engineering (Northeastern University)*

**FRANCES RUCKER, MCOptom, PhD** *Aberrations, Chromatic Mechanisms and Emmetropization*

**FRANK THORN, OD, PhD** *Development of Myopia and Effects of Visual Degradation*

**FUENSANTA VERA-DIAZ, OD, PhD** *Myopia and Visual Performance*

**ERIK WEISSBERG, OD** *Pediatric Optometry, Binocular Vision*



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## **ADMISSION TO THE MS IN VISION SCIENCE PROGRAM**

General information for admission is listed in the admissions section of the College catalog and on the website. There are additional requirements for acceptance into the MS degree program.

### **Additional Requirements for Admission to the OD/MS Dual Degree Program**

- A BA or BS degree
- College transcripts indicating a minimum 3.0 GPA on prerequisites for the OD program, including a course in statistics
- Optometric Admissions Test (OAT) or Graduate Record Exam (GRE general) scores
- An admissions essay detailing the candidate's interests in the MS program
- Names and contact information for three references who can attest to the applicant's analytical or research skills

### **Additional Requirements for Admission to the Stand-alone MS Degree Program**

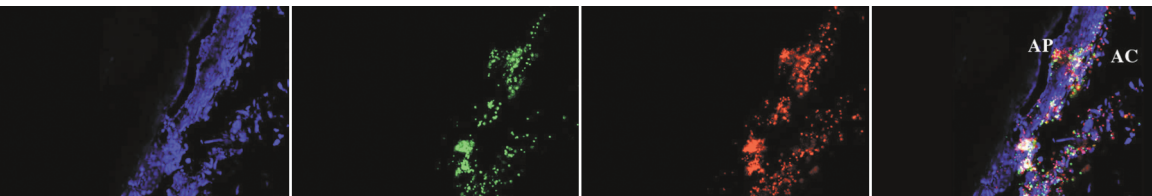
- Professional degree transcripts, if appropriate
- GRE (general) scores

## **APPLICATION PROCEDURES**

- All applications to the MS program must be submitted to the Graduate Studies Committee
- Applications to the Stand-alone MS degree program are accepted from August 1 through April 1
- Applications to the OD/MS dual degree program may be submitted during the first semester of the OD program

### **Additional Requirements for Current OD Students**

- Complete the Laboratory Research Survey Course
- Obtain sponsorship from a member of the graduate faculty



## OD/PhD DUAL DEGREE PROGRAM

Combined program of New England College of Optometry and Boston University School of Medicine, Division of Graduate Medical Sciences

New England College of Optometry and the Division of Graduate Medical Sciences at the Boston University School of Medicine have established a combined Doctor of Optometry and PhD degree program. The core curriculum incorporates the professional curriculum leading to the OD degree at New England College of Optometry (NECO) and offers the PhD graduate programs of the Division of Graduate Medical Sciences at the Boston University (BU) School of Medicine. This sequence is similar to the MD/PhD program offered by BU.

### **The Program of Study: The 3-3-1 Format**

The 7-year dual degree program is structured in a 3-3-1 format. After successful completion of the first three years of the OD course of study, the student begins the 3-year PhD program at the BU School of Medicine. Prospective students who have qualified for the program can choose from the following disciplines offered by the Division of Graduate Medical Sciences:

- anatomy
- behavioral neuroscience
- biochemistry
- biomedical neuroscience
- biophysics
- cell and molecular biology
- genetics and genomics
- immunology
- medical nutrition sciences
- microbiology
- molecular medicine
- pathology
- pharmacology
- physiology

Upon completion of the PhD program and a satisfactory defense of a dissertation, students return to NECO to complete their final year of clinical training. The respective degrees are conferred by New England College of Optometry and Boston University after the requirements for both degrees are successfully completed.

### **Tuition and Fees**

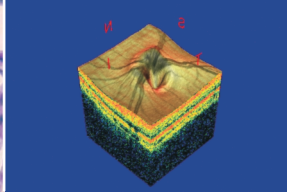
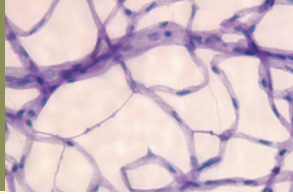
Annual tuition and fees for the OD portion of the OD/PhD dual degree program are the same as for other optometry students. Tuition for the final year will be equivalent to the amount the student's entering classmates paid for that year in the traditional 4-year program.

The Graduate Research Assistant Scholarship Program at the BU Division of Medical Sciences offers credits in lieu of tuition for the first year. In addition, NECO provides a first-year stipend in exchange for laboratory assistant teaching. After completing the PhD qualifying exam, student fees are covered by the BU department in which the student is enrolled, while ongoing stipend support is provided by the student's mentor.

## New England College of Optometry

424 Beacon Street  
Boston, MA 02115

800.824.5526  
www.neco.edu



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### ADMISSION TO THE OD/PhD DUAL DEGREE PROGRAM

The admissions committee and the graduate studies committee of NECO will review all applicants for the OD/PhD dual degree program. OAT scores are required for admission to the OD degree program. If acceptance is recommended by the NECO committee, the names of the candidates will be forwarded to the admissions committee of the OD/PhD program at Boston University School of Medicine, Division of Graduate Medical Sciences.

Matriculated students at NECO may also be admitted to the dual degree program during their first year of study by submitting an application by the end of the first semester.

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### APPLICATIONS & INFORMATION

For additional information and an application for the MS in Vision Science or the OD/PhD program, please contact the Office of Admissions.

Application packages can be obtained by contacting the Office of Admissions via telephone or e-mail.

**CONTACT INFORMATION:** **Office of Admissions**  
**New England College of Optometry**  
424 Beacon Street, Boston, MA 02115

800.824.5526 or  
admissions@neco.edu

Applications and information are also available on the College's website: [www.neco.edu/admissions](http://www.neco.edu/admissions)



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