



New England College of Optometry

**College Catalog
2018-2019**

Course Catalog Table of Contents

About the New England College of Optometry	3
What is an Optometrist?	4
Mission, Vision, and Values	4
Student Learning Outcomes	6
2018-2019 Academic Calendar	8
Accreditation Information	10
Faculty by Department	11
Academic Programs	15
Courses	21
Admissions	43
Academic Requirements	44
Tuition and Fees	46
Financial Aid	48
Academic Policies	49
Offices and Staff	50
Board of Trustees	52
Non-Discrimination Notice	53
Professional Licensure and Certification Notice	53
Study in Clinical Settings	53
Undergraduate Accelerated Program Partners	53
FERPA	54
Use of this Catalog	55



About the New England College of Optometry

Prestige and Reputation

The New England College of Optometry is a professional graduate institution educating students in the discipline of optometry. NECO provides a four-year post-baccalaureate professional curriculum taught by more than 40 full-time and 100 part-time and adjunct faculty. The College aims to give its students a broad and sound training in the science of optometry; a thorough training in the practice of optometry; to uplift the science of optometry to the highest standard; and to make useful, practical and successful optometrists.

NECO is proud to have educated optometrists for more than a century. Our focus today is in advancing visual health and sight for everyone by shaping the future of optometric education, patient care and public health. NECO is recognized nationally and internationally because of its commitment to educate and prepare students to practice to the highest level of proficiency, integrity and professionalism, while confident in their ability to navigate the future demands of the profession and healthcare delivery. At the heart of this commitment is our applied approach to learning – we provide students with early and diverse clinical experiences to reflect and reinforce the knowledge they acquire in the classroom.

With an enrollment of over 400 students, the student body is the most diverse of any college of optometry in the world: More than 25% of the students enrolled in the doctor of optometry program received their pre-optometry education outside the U.S., representing 8 different countries. There are also unique 2-year accelerated programs leading to a doctor of optometry degree for people with advanced academic degrees.

Boston Location and Clinical Rotations

NECO is located in the heart of Boston. This vibrant city allows students to intern in hospitals, community health centers, medical centers, and private practices and gain access to the best medical facilities in the world. The opportunities for applied learning in a clinical setting are unparalleled in diversity and in number. Students have an experience as diverse as Boston itself. Clinical rotations throughout the city and the country allow students to prepare for their careers, not just seeing patients, but through the whole process of patient care.

Community Service

A student's time at NECO helps make the community stronger. After three weeks of class, students begin to conduct vision screenings in HeadStart programs, schools, and pediatric settings. This clinical experience in the community helps to make a real difference in the lives of children and adults throughout the city of Boston and beyond.

Small, Focused Environment Committed to *Your* Success

At the heart of our longevity and success is the value we place on personal connection and community – between our students, our dedicated faculty and staff, and to the patients we serve. When you become a student at NECO, you become part of a community that values connecting on a personal level with a mutual responsibility to one another and to the health of people worldwide.

The New England College of Optometry is accredited by the Accreditation Council on Optometric Education (ACOE) of the American Optometric Association (a member of the Council of Post-Secondary Accreditation) and the New England Association of Schools & Colleges, Inc. (NEASC).



What is an Optometrist?

As primary eye care providers, Doctors of Optometry examine, diagnose, treat and manage diseases and disorders of the visual system, the eyes and associated structures and their related systemic conditions.

Optometrists examine the internal and external structure of the eyes to diagnose eye diseases such as glaucoma, cataracts and retinal disorders; systemic diseases such as hypertension and diabetes; and vision conditions including nearsightedness, farsightedness, astigmatism and presbyopia. They also determine the patient's ability to properly focus and coordinate the eyes, to judge depth and to see colors accurately.

Mission, Vision, and Values

Our Mission

Changing the way people see the world through optometric education, discovery and service.

We do so by:

- *integrating innovative education with early and diverse clinical experiences to prepare students to become outstanding Doctors of Optometry*
- *advancing the frontiers of optometric knowledge through research, and translating that knowledge to improve patients' lives worldwide*
- *cultivating compassionate care of the highest level of proficiency, integrity, and professionalism; influencing public policy; expanding access to comprehensive and specialty optometric services; and instilling sensitivity to the health and social welfare of diverse communities*

Our Vision

NECO will continue to be a leading college of optometry in the rapidly evolving world of professional education and healthcare.

Our Values

The following shared beliefs guide our actions, decisions, planning, and interactions with students, patients, faculty, staff, and the community.

- **Relationships: We believe that all relationships matter.**
Our identity is rooted in our highly personal, community-oriented ethos. We believe that our relationships with students, patients, clinical affiliates, and each other matter. Each relationship we develop and nurture makes us stronger.
- **Collaboration: We believe people working together towards a common purpose can accomplish far more than adding the contributions of individual efforts.**
We strive to develop relationships that reflect this belief and pursue meaningful and mutually beneficial partnerships.



- **Professionalism: We value a culture of integrity, accountability, proficiency, transparency, and mutual respect in how we work and communicate with one another.** We emphasize the importance of experience, competence, resourcefulness, knowledge, and inquiry as we work through a shared vision for the common good.
- **Excellence: We strive to achieve the highest quality standards in patient care and satisfaction, education, and research through continued reflection, assessment, and improvement.** We foster an environment where individuals are encouraged to explore their interests, take risks, develop their intellectual and human potential, and continue to question and make discoveries as lifelong learners.
- **Diversity & Inclusion: We value and respect the diversity of our students, staff, and patients.** We help each other develop a greater awareness towards the complexity of individuals, human life, and health and well-being. We seek to learn from one another through our diverse experiences and perspectives and foster an atmosphere of compassion, courtesy, and mutual respect.
- **Social Responsibility: We value our tradition of serving the community and bringing vision care to underserved populations.** We integrate knowledge with social responsibility at a local, national, and international level. We encourage engagement and purpose through our commitment to community service. Our work promotes vision health and eye care, education, and advocacy, as we works towards sustainable models of health care delivery.
- **Legacy and Innovation: We honor our legacy while we commit to our future.** We recognize that our College has a rich history and honor the best parts of our past. We also realize we are continuously changing and evolving and have an obligation to the future of the institution and our students by being forward-looking in our approach to education, research, patient care, and financial and operational sustainability.



Student Learning Outcomes

Educational Objectives

The faculty of the New England College of Optometry has established a common set of objectives for all of its Doctor of Optometry educational programs. These objectives reflect the competencies expected of every graduate of the College, to enable the graduate to independently practice optometry anywhere in North America.

A Doctor of Optometry graduate from the New England College of Optometry must be knowledgeable in ophthalmic and systemic care, and possess a commitment to continuously improve knowledge and abilities. The graduate will be skillful in techniques and new technologies, skillful in problem solving, and will possess professional, ethical and compassionate behavior and standards. The graduate will be able to address community health issues and thrive in a changing health care environment.

Knowledgeable in visual, ocular and systemic care—the graduate shall:

- Know the structure and function of visual and systemic systems
- Know the normal range of clinical findings
- Recognize pre-disposing epidemiological, environmental, and etiological factors that require intervention to prevent visual deterioration or ocular disease
- Understand the principles underlying the use of ophthalmic devices and procedures in the diagnosis, treatment, and management of visual conditions
- Understand the mechanisms and interactions of pharmacological agents along with their safe and effective use in the diagnosis and treatment of ocular conditions
- Understand the pathogenesis of disease and the implications for ocular health and function and be knowledgeable in ocular and laboratory testing used in the assessment of systemic, visual and ocular function
- Know the scientific and statistical principles underlying the practice of optometry
- Possess the initiative and critical acumen required to continuously improve their knowledge

Skillful—the graduate shall demonstrate the ability to:

- Obtain the pertinent information about a patient using communication, observation, and diagnostic testing
- Interpret results of common procedures, develop differential and definitive diagnoses, devise and implement treatment and management strategies, including the skillful use of ophthalmic materials
- Recognize and triage life threatening and sight threatening problems
- Be aware of the limitations of current procedures and the need to continuously learn, understand, develop and incorporate new technologies and procedures into examination strategies
- Be skillful in organizing, integrating and applying knowledge
- Apply scientific principles to problem solving by:
 - identifying the problem
 - retrieving relevant information from current knowledge of basic sciences judging its adequacy, pursuing additional information and assessing its value
 - interpreting and relating all data to the information obtained
 - applying deductive reasoning to solve the problem
 - monitoring outcomes and modifying management strategies



Professional and ethical—the graduate shall demonstrate:

- Knowledge of principles that govern ethical decision making and respect for the dignity of the patient
- Honesty and integrity in patient and professional interactions and be mindful of ethical pitfalls, conflicts of interest and legal issues in various practice arrangements
- Ability to provide compassionate care
- Commitment to provide eye care regardless of the patient's economic means.
- Skill to identify and relate to the special needs of diverse patient populations.
- Understanding of community health issues
- How to use epidemiological factors to identify and respond appropriately to environmental issues affecting eye disease
- How to thrive in a changing health care (eye care) marketplace.
- Understanding of organizational and financial issues of private practices, health centers, HMOs and hospitals
- Recognition that health care is a team approach which includes a wide range of professionals and practitioners in both the local and global communities.
- Ability to participate and take leadership in inter-disciplinary and multi-disciplinary health care communities
- Understanding of the standard of care for various disease entities and to recognize the risks, consequences and legal implications of the failure to adhere to established and recognized standards



SUMMER TERM 2018	
May 3-11	Orientation for ASIP, MS/OD China
May 14	First day of classes for ASIP, MS/OD China
May 21	Mandatory clinic orientation and clinic assignments for OD 3 Session 1, AODP
May 22	First day of classes for OD 3 Session 1, AODP
May 28	Memorial Day (no classes; check with individual clinics re: closure)
Jun 20-24	AOA/AOSA Annual Meetings, Colorado Convention Center, Denver
June 18	First day of classes for OD 2
July 04	Independence Day (no classes; check w/individual clinics re: closure)
July 06	Last day of classes for OD 3 Session 1
July 07	Last day of clinic for OD 3 Session 1 (check w/individual clinics re: closure)
July 09	Mandatory clinic orientation and clinic assignments for OD 3 Session 2
July 10	First day of classes for OD 3 Session 2
August 03	Last day of classes for OD 2
August 06-10	*Final Examinations for OD 2*
August 07	National Board Examinations, ABS, Part I (2nd administration)
August 10	Last day of classes for AODP, ASIP, MS/OD China Last day of clinic for AODP
August 13-17	*Final Examinations for AODP, ASIP, MS/OD China*
August 24	Last day of classes for OD 3 Session 2
August 25	Last day of clinic for OD 3 Session 2

FALL TERM 2018	
August 27	Mandatory clinic orientation and clinic assignments for OD 2, OD 3, AODP, ASIP, MS/OD China
August 28	First day of classes for OD 2, OD 3, AODP, ASIP, MS/OD China
September 03	Labor Day (no classes; check with individual clinics re: closure)
September 04	Orientation for OD 1
September 05	First day of classes for OD 1
October 08	Columbus Day (no classes; check with individual clinics re: closure)
October 20-28	*Midterm Examinations*
November 7-10	American Academy of Optometry Annual Meeting, San Antonio
November 10-14	APHA Annual Meeting, San Diego
November 12	Veterans Day, observed (labs will be in session, lectures will not; check with individual clinics regarding closure policies)
November 21-25	Thanksgiving Break (no class and clinic)
December 4 or 6	National Board Examinations, PAM, Part II
December 14	Last day of classes for all Last day of clinic and screenings for OD 1, OD 2, AODP, ASIP, MS/OD China
December 15-23	*Final Examinations*
December 22	Last day of clinic for OD 3
Dec 24-Jan 06	Winter Break



SPRING TERM 2019

January 07	First day of classes and screening assignments for OD 1 Mandatory clinic orientation and clinic assignments for OD 2, OD 3, AODP 2, ASIP, MS/OD China
January 08	First day of classes for OD 2, OD 3, AODP 2, ASIP, MS/OD China
January 21	Martin Luther King Day (no classes; check with individual clinics re: closure)
February 18	Presidents' Day (no classes; check with individual clinics re: closure)
February 22	Orientation for AODP 1
February 25	First day of classes for AODP 1
Feb 20-24	SECO International, New Orleans
March 02-10	*Midterm Examinations*
March 11-17	Spring Break
March 19-22	No classes or clinics in session for OD 3. OD 3 students not taking Part I of the NBEO exams must report to clinic. All other students' classes and clinics in session.
March 19-22	National Board Examinations, ABS, Part I
March 21-24	International Vision Expo & Convention East, New York City
April 02	National Board Examinations, PAM, Part II
April 22-24	Congressional Advocacy Conference
April (TBD)	Visionaries Day (mandatory, lectures will not meet)
April 15	Patriots' Day (no classes; check with individual clinics re: closure)
Apr 28-May 02	ARVO Annual Meeting, Vancouver, Canada
May 10	Last day of classes for all Last day of clinic and screenings for OD 1, OD 2, AODP 1, AODP 2, ASIP, MS/OD China
May 11-18	*Final Examinations* (OD3 last final: Thursday, May 16)
May 15	Last day of clinic for OD3
May 19	Graduation: Class of 2019

2018-2019 FINAL YEAR ROTATION CALENDAR

- Rotation 1: Monday, May 21, 2018 – Thursday, August 23, 2018
- Rotation 2: Monday, August 27, 2018 – Wednesday, November 21, 2018
- Rotation 3: Monday, November 26, 2018 – Thursday, February 21, 2019
- Rotation 4: Monday, February 25, 2019 – Thursday, May 16, 2019

Please note: OD 4 students may not register to take the NBEO Part III board exam during the first and last weeks of each rotation period. For questions, please contact Dr. Weissberg at weissberge@neco.edu.

2020-2021 Rotation Calendar Preview (*Tentative and subject to change*)

- Rotation 1: Monday, May 20, 2019 – Thursday, August 22, 2019
- Rotation 2: Monday, August 26, 2019 – Wednesday, November 20, 2019
- Rotation 3: Monday, November 25, 2019 – Thursday, February 20, 2020
- Rotation 4: Monday, February 24, 2020 – Thursday, May 14, 2020

*Students assigned to affiliated clinical sites are required to follow the calendar of the clinic to which they are assigned, which may be different from the above calendar. Please contact your clinic director before making any travel plans.

*OD 3 students are expected to fulfill clinical assignments throughout midterm and final exam weeks, as the exam schedule allows, and will not have any clinical assignments during Thanksgiving, Winter, and Spring Break. Please note in spring term 2019, last day of clinic is Wednesday, May 15.

*OD 1, OD 2, AODP, ASIP, and MS/OD China students will not be assigned to screenings or clinical assignments during midterm and final exam weeks and will not have any clinical assignments during Thanksgiving, Winter, and Spring Breaks.



Accreditation Information

HIGHER EDUCATION OPPORTUNITY ACT CONSUMER INFORMATION UNDER 34 CFR 643.43B

New England College of Optometry (the College) is accredited by both the Accreditation Council on Optometric Education (ACOE) of the American Optometric Association and by the New England Association of School and Colleges (NEASC) through its Commission on Institutions of Higher Education (CIHE). Both ACOE and NEASC are recognized by the U.S. Secretary of Education as reliable authorities on the quality of education and adhere to the standards of the Council for Higher Education Accreditation. The College has been continuously accredited by ACOE since 1941 and by NEASC since 1976.

Periodically the College undergoes a peer review process. As a result of their November 2012 joint accreditation visit, both ACOE and NEASC determined that the College should continue to be accredited. ACOE's next visit is planned for November 2020; NEASC's for the fall 2022. During that time, the College is required to submit annual accreditation reports to ACOE and NEASC that meet their respective standards and address any recommendations that may have resulted from either the joint accreditation visit or interim filings.

Separately, ACOE reviews each of the College's residency programs on a different timetable.

Inquiries and requests for written documentation regarding the College's accreditation may be directed in writing to the Office of the President, 424 Beacon Street, Boston, MA 02115.

If you have any further questions or complaints regarding the College's accreditation, you may contact:

Accreditation Council on Optometric Education
243 N. Lindbergh Boulevard, Floor 1
St. Louis, MO 63141
314-991-4100 or www.theacoe.org

New England Association of Schools and Colleges
3 Burlington Woods Drive, Suite 100
Burlington, MA 01803
855-886-3272 or <http://cihe.neasc.org/>

Massachusetts Board of Higher Education
One Ashburton Place, Room 1401
Boston, MA 02108
617-994-6950 or <http://www.mass.edu/forstudents/complaints/complaints.asp>



Faculty by Department

Department of Biomedical Science and Disease

The faculty of the Department of Biomedical Science and Disease teach courses that cover basic human cell biology, anatomy, and neuroanatomy, as well as biochemistry, physiology, and immunology. These courses form the foundation for the more advanced study of clinical medicine, systemic and ocular pathological processes, and the diagnosis, treatment, and management of ocular disease.

Department Chair

Steven B. Koevary, PhD

Full-time

Maureen M. Hanley, OD

James R. Mertz, OD, PhD

Debora L. Nickla, PhD

Bina Patel, OD, FAAO

Frances J. Rucker, BSc (Hons), Dip. Opt. Optics, MSc, PhD, MCOptom, FAAO

William E. Sleight, OD

Adjunct

Diane Adamczyk, OD, FAAO

James Aylward, OD, FAAO

Whitney Catanio, OD

Tony Cavallerano, OD, FAAO

Dean M. Cestari, MD

Lin Chia, OD

Rachel C. Druckenbrod, OD, FAAO

Thomas Freddo, OD, PhD

Karen Gladstone, MA, OD

Haiyan Gong, MD, PhD

Kathleen Krenzer, OD, PhD

David Shein, MD

Brandon Zimmerman, PhD

Emeritus

Mark B. Zorn, PhD, OD



Department of Primary Care

The Department of Primary Care provides classroom education, technical workshops, and clinical training to help students develop their patient care skills and to understand the role of optometric care within the greater health care delivery system. The clinical education is supported by the primary care department. Clinical assignments are selected based upon factors that include diverse patient populations, exposure to state of the art instrumentation, and supervisory faculty who are committed to both patient care and education.

Department Chair

Aurora B. Denial, OD, FAAO

Full-time

Daniel Bastian, OD, FAAO

Elena Z. Biffi, OD, MSc, FAAO

Hilary Gaiser, OD, MSc

Diane Russo, OD, FAAO

Fuensanta A. Vera-Diaz, OD, PhD

Adjunct

Melanie Akau, OD

Baharak Asefzadeh, OD, MS, FAAO

Joanne Caruso, OD

Gary Chu, OD, MPH, FAAO

Robert Dunphy, OD, FAAO

Matthew Garston, OD, FAAO

Douglas Hoffman, OD, FAAO

David Mills, MBA, OD

Clifford Scott, MPH, OD

Sarah Wassnig, B. Optom (OcTher), MPH

Benjamin Young, OD

Emeritus

Nancy Carlson, OD

Bill Chauncey, PhD, OD

Joseph Svagdys, OD

Roger Wilson, OD



Department of Specialty and Advanced Care

The Department of Specialty and Advanced Care includes courses and clinical programs to develop specific background, skills, clinical insights, and patient-management capabilities required of optometrists within the specialized clinical realm of contact lenses, low vision, geriatric optometry, individuals with disabilities, pediatric optometry, and binocular vision. The curriculum provides a foundation that integrates basic science with clinical science and is directly related to the provision of clinical care of patients within these specialized subject areas.

Department Chair

Stacy A. Lyons, OD

Full-time

Kristen Kerber, OD, MS

Barry S. Kran, OD, FAAO

Nicole B. Quinn, OD

Nicole C. Ross, OD, MSc, FAAO

Gayathri Srinivasan, MS, OD, FAAO

Erik M. Weissberg, OD, FAAO

Adjunct

John Abbondanza, OD

Emily Kachinsky, OD, MS

Christen Kenrick, OD

D. Luisa Mayer, MEd, PhD

Jean Ramsey, MD, MPH

Crystal Remington, OD

Justin Smith, OD

Mitchell B. Strominger, MD

Ronald Watanabe, OD, FAAO

Paul White, OD

Darick Wright, CLVT/COMS MA

Harry Zeltzer, OD, DOS, FAAO, FVI

Emeritus

Richard Jamara, OD, FAAO

Jack Richman, OD

Bruce Moore, OD



Department of Vision Science

The Department of Vision Science provides courses that promote an understanding of the theory and application of optics, as well as the structure and function of normal and abnormal visual systems. The curriculum includes optics, vision testing, binocular vision, and visual neuroscience.

Department Chair

Glen L. McCormack, OD, PhD

Full-time

Jane E. Gwiazda, PhD

Ji-Chang He, PhD

Athanasios Panorgias, MSc, PhD, FAAO

David Rio, PhD

Part-Time

Guang-Ji Wang, MD, OD

Adjunct

Anthony Guarino, PhD

Alan Lewis, OD, PhD

Ernest V. Loewenstein, OD, PhD

Anne Moskowitz, OD, PhD

Eliezer Peli, MSc, OD

Christopher Taylor, B.Sc., Ph.D.

Blair C. Wong, ABOM, BS

Emeritus

James P. Comerford, PhD, OD

Frank Thorn, OD, PhD

Paul Lappin, PhD, OD

Department of Clinical Education

This department supports the clinical work component of the curriculum at New England College of Optometry. Students work under the careful supervision of faculty mentors who help them hone their clinical skills and develop expertise in specialty areas of interest. They work in a clinical environment that familiarizes them with a contemporary health care model that emphasizes visual health through community-based collaborations.

Director of Clinical Education: Erik M. Weissberg, OD, FAAO



Academic Programs

Doctor of Optometry (OD) Programs

Four-year OD Program

This program prepares you for a career as a clinician, researcher, or educator. Our unique elective program provides you with the opportunity for advanced education in an area of personal interest with options for pursuing a postgraduate education.

The curriculum of the four-year OD program is organized and delivered through four departments: Vision Science, Biomedical Science and Disease, Primary Care, and Specialty and Advanced Care. Each course is developed as one step in a sequence designed to facilitate each student's mastery of the knowledge and skills required of an optometric professional capable of managing conditions of the human eye and visual system.

The Department of Vision Science provides course material leading to an understanding of the theory and application of optics as well as the structure and function of the normal and abnormal visual system. To that end, the content of the vision science curriculum is presented within four general areas: optics, vision testing, binocular vision, and visual neuroscience.

The Department of Biomedical Science and Disease courses provide the student with an understanding of the normal and abnormal structure and function of the human organism. A background is provided in the following areas: fundamental anatomical and biochemical mechanisms; physiological, immunological, and pathological processes; and the diagnosis, treatment, and management of ocular disease.

The Department of Primary Care provides classroom education, technical workshops, and clinical training to help students develop their patient care skills and to understand the role of optometric care within the greater health care delivery system. Emphasis is placed on balancing scientific knowledge, technical expertise, problem-solving ability, and personal interactions to stimulate doctors-in-training to become competent, compassionate, eye care professionals. Clinical assignments are selected based upon their offering diverse patient populations, exposure to state of the art instrumentation, and supervisory faculty who are committed to both patient care and education.

The Department of Specialty and Advanced Care offers courses and clinical programs that encompass the specific background, skills, clinical insights, and patient-management capabilities required of optometrists within the specialized clinical realm of contact lenses, low vision, geriatric optometry, pediatric optometry, binocular vision, and individuals with disabilities. The curriculum provides a foundation that integrates basic science with clinical science and is directly related to the provision of clinical care of patients within these specialized subject areas.

Clinical experiences enable students to become competent optometric professionals who can integrate scientific knowledge with clinical insights to diagnose, treat, manage visual and ocular problems, and co-manage related systemic conditions. The preceptor-ship method is used throughout the program. It calls for close initial supervision by licensed faculty, with the students assuming more responsibility over time. The role of the preceptor slowly changes from supervisor to consultant. The students' final year is entirely clinical with assignments to an array of diverse practice settings.



Accelerated Optometric Degree Program

The Accelerated Optometric Degree Program (AODP) is a twenty-seven month program for scientists and physicians who hold a doctoral degree, PhD or MD. The program was established in 1972 to attract highly qualified candidates who can provide unique contributions to the profession of optometry. Doctors considering this program should be aware that it is extremely demanding and precludes other activities. The first three academic years of the regular four-year OD program are compressed into 15 intensive months.

Graduates of the program have gone on to become college deans, department chairs, professors in both optometry and medical programs, and successful optometric practitioners in a variety of practice settings.

Most of the PhD's in the program have been previously educated in the biological sciences and have extensive research experience. However, the College seeks to attract a diverse group of applicants who can contribute to the program and to the profession of optometry. Graduates of the program have held previous experience in a variety of disciplines, including aeronautical and space engineering, anatomy, anthropology, biochemistry, biology, biomedical engineering, chemistry, dentistry, electrical engineering, experimental psychology, mathematics, neuroscience, parasitology, and physics. Research based PhD's in other fields are also encouraged to apply.

Although several of the medical doctors who have graduated from the program were trained in the United States, most of the physicians in the program are international MDs with extensive clinical and/or research experience in ophthalmology. Physicians in cardiac surgery, general practice, oncology, pediatrics, and many other specialties have also become excellent optometrists through the program.



Graduate Programs

MS in Vision Science

The Master of Science (MS) in Vision Science is designed to provide experience in vision research methodology through the development and execution of an original research project, and completion and defense of a research thesis. The goal of the program is to train students, especially optometrists, to perform original research in vision science. The curriculum is based on a total of 36.25 credit hours of study. There are two ways to earn this degree:

1. **OD/MS Dual Degree Program**

Designed for optometry students who wish to earn a Master of Science (MS) degree while studying for the Doctor of Optometry (OD) degree. The dual OD/MS degree is completed within the time frame of the four-year OD degree program and involves modifications to the course sequence in the OD curriculum. Students who are accepted into this program will have training in areas not typically available to optometry students. This will provide enhanced career opportunities. MS degree candidates develop skills that can help them contribute new knowledge to the field, help them assess new scientific developments relevant to optometry, and enable them to be more competitive for academic and industry positions and residencies following graduation. The graduates of this program have the potential to become intellectual leaders in the optometric profession.

2. **Stand-alone MS Degree Program**

Designed for students who wish to earn the 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. This is a two-year, tuition-based graduate degree program that features graduate-level courses, seminars, an original research project, and completion of a thesis with a thesis defense. The stand-alone MS program is designed to develop the analytical thinking and problem-solving skills needed to be a successful vision scientist.



OD/PhD Dual Degree Program

The Division of Graduate Medical Sciences at the Boston University School of Medicine (BUSM) and the New England College of Optometry (NECO) have established a combined Doctor of Optometry (OD) and PhD program. The core curriculum for the program incorporates NECO's four-year OD curriculum with the requisite curriculum of the post-Master's graduate programs of the Division of Graduate Medical Sciences. This sequence is similar in its programmatic elements to the BUSM MD/PhD program.

Students in the combined degree program will complete the first three years of the four-year OD program. Assuming satisfactory academic performance standards have been met during these three years, the student will then begin the post-Master's PhD curriculum at BUSM. Students can choose from the following disciplines offered by the Division of Graduate Medical Sciences: anatomy, biochemistry, cell and molecular biology, genetics and genomics, molecular and translational medicine, behavioral neuroscience, biomedical neuroscience, microbiology, immunology, pathology, pharmacology, physiology, biophysics or medical nutrition sciences.

Upon completion of the PhD program and a satisfactory defense of a dissertation, the student will return to NECO to complete their clinical training. Upon completion of the requirements for the OD degree, both degrees will be conferred at the respective commencements of the two participating institutions.

Admissions to the OD/PhD Program

NECO's Admissions Committee and Graduate Studies Committee will review all applications earmarked for the combined OD/PhD degree program on an early action basis, with a decision by December 15th. OAT scores are required for admission to the professional program.

If acceptance is recommended, the names will be forwarded to the Admissions Committee of the OD/PhD Program at BUSM's Division of Graduate Medical Sciences. The Admissions Committee for the PhD portion of the combined program will render a decision by February 15th.

Matriculated students at the New England College of Optometry may also be admitted to the combined program during their first professional year by submitting a complete application.

Cost of Study for the OD/PhD Program

Tuition for the first year of the BU graduate program is covered through GRASP Credits of the Division of Graduate Medical Sciences. The New England College of Optometry will provide a first year stipend in exchange for laboratory assistant teaching. Following completion of the PhD qualifying examination, continuing student fees are covered by the BUSM department in which the student is enrolled, while ongoing stipend support is provided by the student's mentor. Upon completion of the dissertation, annual tuition for the remaining year of the professional program at NECO will be the same as that which the student would have paid if he/she continued with the class in which they began the professional program.



International Programs

The Center for the International Advancement of Optometry

The New England College of Optometry (NECO) officially adopted an international agenda in 1994 with the establishment of the Center for the International Advancement of Optometry (CIAO). Over the ensuing years, the Center has acquired an experienced staff with expertise in international program development. Projects are developed with sensitivity to regional needs and carried out in collaboration with local eye care practitioners and educators.

The CIAO currently provides faculty teaching expertise in established international optometric programs in China, Germany, Israel, and South Africa. Their expertise ranges from advanced training for optometrists in a focused area of study to partnering in graduate level education with international universities. NECO faculty members have been involved in international teaching by personal invitation in such countries as Italy, Thailand, and Colombia.

The CIAO is notable for:

- Being the first college of optometry to deliver an accredited doctoral degree program overseas in the 1990s
- Establishing the first and only international joint health care degree program (MS/OD) in China with Wenzhou Medical College
- Providing international clinical externship opportunities for our students at Wenzhou Medical College (Wenzhou, China), at Centro Boston (Madrid, Spain), and in several Canadian locations
- Providing an elective opportunity in dispensing optics for second year students in Aalen University, Germany

Advanced Standing International Program

The Advanced Standing International Program (ASIP) is one component of the College's ongoing commitment to international optometry and its efforts to develop highly educated professionals who may then contribute to the development of optometry in their home countries. Through CIAO, graduates of international optometry programs may be admitted to ASIP. Over 175 internationally-educated optometrists from 22 countries have received their Doctor of Optometry degree from the College's Advanced Standing International Program.

Graduates of the program have become faculty at optometric institutions, participated in curriculum development, and become contributors, authors, and editors for journals and articles. ASIP graduates are involved with legislative issues, active in providing lectures of continuing education programs, have established international clinical externships, and have gone on to sub-specializing in residency programs, clinical research, and humanitarian work.



MS/OD China Program

In November 2000, Wenzhou Medical College and the New England College of Optometry (NECO) initiated a unique joint degree program providing those completing the program with two degrees: the Master of Science and Doctor of Optometry degrees. The program was specifically created to develop a cadre of knowledgeable and skilled optometrists in China who could assume the highest positions in China's medical education and health care systems. The proposal was endorsed by China's Ministry of Education and Ministry of Public Health. The MS/OD China curriculum combines the AODP program and the Master of Science degree with joint clinical externships that include six months in Boston based rotations and six months at Wenzhou Medical College. Comprehensive accreditation and approval has been received by the American Colleges of Optometric Education and the New England Association and Schools and Colleges in the US.

The program's goal is to develop a core group of individuals trained in optometry and educated as scientists to advance the quality of eye care and the development of educational programs within the field of optometry. Graduates of the program have gone on to hold the following positions:

- Director of Research and Development at the Affiliated Eye Hospital, Wenzhou
- Director of International Programs for the School of Optometry and Ophthalmology, Wenzhou
- Country Coordinator of Health Services for the International Special Olympics
- Editor of Contact Lenses, Optometric Instrumentation, Visual Neurophysiology, and Ophthalmic Lenses
- Vice Director of the Affiliated Eye Hospital, Wenzhou
- Principle Lecturer at the Wenzhou Medical College

Graduates of the program have also received grants from the National Natural Science Foundation of China, the Natural Science Foundation of Zhejiang Province, and the Ministry of Health in Beijing. They have been elected to the People's National Congress, lectured nationally, and have provided significant continuing education in the area of contact lenses for the ophthalmic industry.

NECO faculty members have taught at Wenzhou Medical College. They provided lectures and expertise in their area of specialization and their efforts are ongoing. Faculty members have included Drs. Comerford, Harb, Gilman, Jamara, Kran, Kwok, McCormack, Moore, Panorgias, Patel, Scott, Thorn, Wang, Weissberg, Watanabe, Xu, and Zorn.

In addition, the clinical externship established at Wenzhou Medical College in recent years has been included as an elective externship rotation site for NECO's fourth year OD students. Despite the relatively small number of students admitted to the program, the impact so far has been significant and has already had a direct influence on the level of optometric care available in China.

NECO has helped facilitate, design, and implement an educational program that provides the highest level of education in optometry in China. The quality of this education has provided the profession a prestige within China due to the program's selective admissions policy. Graduates of the program have consistently returned to China to hold leadership positions and continue to strengthen the profession within the country.



Courses

Biomedical Sciences and Disease Courses

Advanced Ocular Disease I (BSD30701), Advanced Ocular Disease II (BSD30702)

Instructor: William Sleight, OD

The AOD course sequence is a blended-learning course consisting of 100 hours of classroom discussion and 10 hours of online material. The didactic material is taught from a clinical-pathological perspective with the emphasis on diagnosis, treatment, and appropriate referral. Approximately 20 percent of the face-to-face time consists of interactive case discussion using a classroom response system (clickers). All lectures are recorded and all materials are available for review online. Instructional aids include online interactive cases and instructional quizzes for extra credit.

Anatomy and Physiology I (BSD10320)

Instructor: Frances Rucker, Dip. Opt. Optics., MSc., Ph.D., MCOptom., FAAO

This course provides a solid grounding in the principles of human anatomy as a basis for understanding disease. Head and neck anatomy is covered in extensive detail, as is the detailed anatomy of the orbit and external eye. Laboratory exposure to the material is also through human cadaver prosection, anatomical models, and computer-based teaching tools. The ocular physiology component of the course examines the physiology of the tears, cornea, lens, vitreous and retina. A strong emphasis is placed on understanding the normal functioning of these tissues so that the student can understand how dysfunction can lead to ocular disease. The material covered in this course provides essential background for clinical medicine, pharmacology, and ocular disease.

Anatomy and Physiology II (BSD10321)

Instructor: Steven Koevary, PhD

This course examines the anatomy of the major thoracic and abdominal organ systems as well as the physiology of excitable cells (nerve and muscle) and the cardiovascular, respiratory, renal, endocrine, and digestive systems. The material covered in this course provides essential background for clinical medicine, pharmacology, and ocular disease.

Cell Biology, Histology, and Ocular Anatomy (BSD10300, BSD10305)

Instructor: Debora Nickla, PhD

This course provides an introduction to cell biology and the cellular components that make up tissues and determine their functions. Topics include epithelium, connective tissue, muscle, and nerve. Basic principles of organic molecules, cell biology, development, and tissue organization are covered, with an emphasis on relationships to ocular anatomy. The gross and microscopic anatomy of the ocular tissues are covered in detail. Laboratory sessions reinforce this material.

Clinical Medicine (BSD30901)

Instructor: David Shein, MD

This one-semester course addresses a wide range of medical illnesses seen in clinical practice. Systemic diseases with ocular manifestations will receive the most focus, with specific attention given to the systemic findings. The optometry student will gain an understanding of epidemiology, pathogenesis, clinical findings, treatment strategies, and referral guidelines. From the optometry perspective, students will learn when systemic diseases should be considered based upon ocular symptoms or findings on eye examination.



Clinical Neuro-ophthalmic Topics (BSD20350, BSD20355)

Instructor: Rachel Druckenbrod, OD, FAAO

This course provides a comprehensive overview of various neurologically related conditions that present to the optometrist's office. Included are such topics as orbital disease, nystagmus, transient monocular vision loss, headache disorders, and neuro-ophthalmic emergencies. An overview of neuro-imaging will be provided including understanding how to order and interpret various imaging techniques such as CTscans, and MRI.

General Pharmacology (BSD20805)

Instructor: Brandon Zimmerman, PhD

This course covers selected topics in pharmacology pertaining to the nervous, cardiovascular, endocrine, and metabolic systems. Pathologies of the various systems and the mechanisms of pharmacological intervention will be covered. Side effects and contraindications of pharmacological treatments will also be explored. Additionally, basic principles of pharmacology will be explored to allow a better understanding of factors to consider when using or prescribing therapeutic drugs.

Human Anatomy (BSD10013)

Instructor: Frances Rucker, BSc (Hons), Dip. Opt. Optics, MSc, PhD, MCOptom, FAAO

The Human Anatomy course presents a selective discussion of human gross anatomy as a basis for understanding disease and ocular function. A strong emphasis is placed on head and neck anatomy, including the orbit. This course complements a section of the histology course in which there is intensive consideration of the gross, microscopic and ultrastructural anatomy of the normal human eye. The didactic material in the gross anatomy course is illustrated with online access to Acland's videos of human anatomy dissection and in the laboratory with dissection of the bovine eye and anatomical models.

Immunology (BSD20401)

Instructor: Steven Koevary, PhD

This course teaches the basic principles of immune system function. The cells and factors which mediate the various types of immune responses, as well as their mechanisms of action in such processes as hypersensitivity reactions, inflammation, and neoplastic transformation, are described. Immunological principles are applied to the understanding of human disease, with emphasis placed on the eye, including the special nature of the intraocular immune response.

Neuroanatomy (BSD10009, BSD10011)

Instructor: Steven Koevary, PhD

This course provides the student with information concerning the structure of the central nervous system as it relates to physical, reflexive, sensory, cognitive, and emotional behavior. All structures are studied in their clinical context. Students learn how to select and prioritize information to solve clinical problems.

Ocular Biochemistry (BSD10341)

Instructor: James Mertz, OD, PhD

This course covers the molecular composition of living cells, the organization of biological molecules within the cell, and the structure and function of these biological molecules. The macromolecules covered are proteins, polysaccharides, polynucleic acids (DNA and RNA), and lipids, including the monomeric units of these macromolecules. The unique lipid properties of the photoreceptor inner and outer segments are also discussed. Other topics include the kinetics and catalytic mechanisms of enzymes. The role of the above molecules in ocular disease is also discussed.



Ocular Biochemistry and Genetics (BSD10340)

Instructor: James Mertz, OD, PhD

This course covers the study of the molecular composition of living cells, the organization of biological molecules within the cell, and the structure and function of these biological molecules. This course concentrates on the structures of these molecules, their functions, and the strong relationship between structure and function and ocular disease. Other topics to be examined include the study of lipids as well as the kinetics and catalytic mechanisms of enzymes. The general concepts of genetics will be reviewed during the discussion of the relationship of genetic information to various ocular genetic diseases.

Ocular Disease Principles I (BSD10721)

Instructor: Maureen Hanley, OD and Bina Patel, OD, FAAO

This course will provide students an intermediate level of understanding regarding the diagnosis and management of common anterior segment findings in the eye.

Ocular Disease Principles II (BSD20722)

Instructor: Maureen Hanley, OD and Bina Patel, OD, FAAO

This course will provide students an intermediate level of understanding regarding the diagnosis and management of common variations and disease conditions affecting the uvea and posterior segment of the eye. The course will be complemented with diagnostic laboratory procedures. At the end of the course, students will be able to provide a comprehensive eye examination including dilation.

Ocular Disease Principles III (BSD20723)

Instructor: Maureen Hanley, OD

This course provides a comprehensive survey of glaucoma and ocular emergencies. The glaucoma portion of the course will include a comprehensive understanding of the diagnostic tools necessary to diagnose primary and secondary open and closed angle glaucoma. Proper follow-up management including observation, pharmaceutical treatment, and laser treatment will be discussed. Concepts will also be reinforced with interactive workshops.

Ocular Pharmacology I (BSD20811), Ocular Pharmacology II (BSD20812)

Instructor: William Sleight, OD

Ocular pharmacology is a hybrid course with pre-recorded lectures which are provided as downloadable PDF files; in this way students have permanent access to the core course material. Key concepts are also reviewed via 30 hours of face to face lecture. The content is divided into 11 modules, with each module covering current concepts regarding the management of ocular disease with systemic and topical pharmaceutical agents. Graded self-assessment quizzes for each module are given online and must be completed by designated due dates. After completing this course, the student will know the current indications, off-label indications, side effects, and the most common drug interactions of current drugs used in ocular therapy. Moreover, the student will learn the mechanism of action of specific drugs as they relate to the pathophysiology of the condition for which the drug is prescribed. The pros and cons of particular drugs will be discussed so as to aid in the clinical decision-making process.



Ocular Physiology (BSD10288)

Instructor of Record: Frances Rucker, Dip. Opt. Optics., MSc., Ph.D., MCOptom., FAAO

The Ocular Physiology course examines the physiology of the tears, cornea, lens, vitreous and retina. A strong emphasis is placed on understanding the normal functioning of these tissues so that the student can understand how dysfunction can lead to ocular disease. This course complements the head and neck section of Human Anatomy and Cell biology relating to the orbital structures.

Optic Nerve Diseases (BSD10725)

Instructor: Maureen Hanley, OD

This course provides a comprehensive survey of glaucoma, visual fields, and optic nerve head evaluation. The glaucoma portion of the course will include a comprehensive understanding of the diagnostic tools necessary to diagnose primary and secondary open and closed angle glaucoma. Proper follow-up management including observation, pharmaceutical treatment, and laser treatment will be discussed. Concepts will also be reinforced with interactive workshops.

Principles of Anterior Segment Diseases (BSD10720)

Instructor: Maureen Hanley, OD and Bina Patel, OD, FAAO

This course will emphasize anterior segment ocular diseases at an intermediate level of knowledge that will include variations from the normal and common pathological presentations. The course will be complemented with diagnostic laboratory procedures.

Special Topics I: Ocular Disease and Advanced Clinical Care (BSD30711)

Instructor: James M. Aylward, OD, FAAO

This course provides advanced, clinically-relevant education for optometrists-in-training who have completed their second professional year and who have been exposed to patient care. The course is designed to expand clinical knowledge and enhance understanding in the area of secondary and tertiary eye care. It presents an overview of advanced clinic topics related to both anterior and posterior segment disease. Each presentation consists of lecture and case studies, and is designed to be interactive and participatory. Instructors are active clinicians/educators who have expertise in their specific topical areas. Topics include: diagnosis and management of corneal infections; surgical approach to cataracts, refractive procedures and corneal transplantation; management of retinal breaks and detachments; tertiary care of glaucoma, ocular oncology, acquired macular disease; and fluorescein angiography.

Special Topics II: Ocular Disease and Advanced Clinical Care (BSD30712)

Instructor: James M. Aylward, OD, FAAO

This course represents skill-building in all areas of clinical care, and provides advanced, clinically-relevant education for optometrists-in-training who have completed the second professional year and who have been exposed to patient care. The course is designed to expand clinical knowledge and enhance understanding in the area of secondary and tertiary eye care. The emphasis in Special Topics II is posterior segment disorders, glaucoma, and ocular manifestation of systemic disorders. Each presentation consists of lecture and case studies, and is designed to be interactive and participatory.



Systems Physiology (BSD10286)

Instructor: Steven Koevary, PhD

This course examines the anatomy and physiology of excitable cells (nerve and muscle), and the cardiovascular, respiratory, renal, endocrine, and digestive systems, as well as the physiology of receptors and membrane channels. The course uses an integrative approach that includes the examination of biochemical, cellular, histological, and whole-organ mechanisms. The material covered in this course provides essential background material for the clinical medicine, pharmacology, and ocular disease courses.

The Etiology of Diabetes and Glaucoma (BSD10204)

Instructor: Maureen Hanley, OD

This multidisciplinary course provides a comprehensive discussion of the pathogenesis of diabetes and glaucoma, two of the leading causes of blindness. The course examines the underlying physiology, neuroanatomy, psychophysics, epidemiology, public health, (including screening and compliance issues), examination methods, and treatment options for these conditions and includes an in-depth analysis of the relevant underlying biochemical pathways. Laboratories that teach techniques for diagnosing and managing these two diseases are coordinated with the lectures.

Clinical Education Courses

Patient Care I (PC12120), Patient Care Ia (PC12125), Patient Care Ib (PC12126)

Instructor: Erik Weissberg, OD, FAAO

Patient Care I is the first introduction to patient care as a student clinician. This course consists of vision screenings and clinical observations. The NECO vision screening is a limited testing of vision, consisting of eight separate examination procedures, tailored to the population being served. Students will perform screenings on toddlers, children, and young adults under the oversight of a preceptor. On each screening, students are evaluated by the preceptor on examination techniques, record keeping, attitude/professionalism, and maintenance of patient logs.

The second part of this course focuses on proficiency in professional doctor-patient communications. Students learn communication techniques via lectures, readings, observations of health care professionals, and by application and practice during assigned screenings. The observation program places students in different health care settings to critically observe how communication techniques are utilized.

These two clinical activities (screenings and observations) comprise the clinical course for the first year. Students in the Advanced Optometric Degree Program begin vision screenings and clinical observations during the spring of their initial year.

For all of Patient Care I, clinical performance is graded as Pass, Remedial or Fail based on meeting all of the requirements and on clinical performance at screenings. The requirements include fulfilling immunizations, CPR training, HIPAA training, and submitting clinical observation forms, log forms, and preceptor evaluations. Clinical performance is evaluated by screening preceptors after each screening assignment, as well as a final on-line grade submitted at the end the term.



Patient Care II (PC22120), Patient Care IIa (PC22125), Patient Care IIb (PC22126)

Instructor: Erik Weissberg, OD, FAAO

Patient Care II is the primary clinical component of the second year curriculum. Through assignments to practices in the New England Eye network of clinics, health centers, VA hospitals and affiliated practices in the Boston area, students become active members of an eye care delivery team. In addition to applying their current level of knowledge and skills, students are expected to acquire an understanding of patient care delivery, effective patient communication, ancillary office skills, and an understanding of ocular health and disease detection through the use of automated and other diagnostic equipment. As skills are developed during the year, preceptors are encouraged to incorporate those techniques into patient care responsibilities. The students are evaluated with a midterm progress report and a final evaluation, and receive a final clinical grade (honors, pass, remedial, or fail) at the end of each term based on meeting all of the requirements and on clinical performance. The requirements include fulfilling immunizations, CPR training, HIPAA training, and submitting clinical observation forms, log forms, and preceptor evaluations.

Patient Care IIIa (PC32125), Patient Care IIIb (PC32126), Patient Care IIIc (PC32127)

Instructor: Erik Weissberg, OD, FAAO

This sequence of courses gives students direct patient care experience and responsibilities in affiliated health centers, Veterans Affairs hospitals, private practices, or in the New England Eye operated clinical system. Clinical preceptors will evaluate and guide the student through the process of providing eye care. Students are graded on key clinical components: technical skills, knowledge base, analytical skills, diagnostic skills, management and treatment, communication skills, efficiency, attitude, and professionalism. The students are evaluated with a midterm progress report and a final evaluation, and receive a final clinical grade (honors, pass, remedial, or fail) at the end of each term based on meeting all of the requirements and on clinical performance. The requirements include fulfilling immunizations, CPR training, HIPAA training, and submitting clinical observation forms, log forms, and preceptor evaluations.

The Office of Clinical Education monitors the quality and quantity of patient encounters for each student. Through the clinical assignments, students will gain proficiency in full-scope optometric patient care. Students develop clinical reasoning skills by integrating technical and didactic knowledge with diverse patient encounters ranging from simple to complex.

Patient Care IV

Four rotations during the final year complete the clinical requirements, with mandatory assignments in Primary Care, Advanced Care and Specialty Care. Students choose an additional assignment from a list of elective sites. The College currently has affiliated clinical sites located in over thirty states, three Canadian provinces, China, and the United Kingdom. Student assignments are based on a variety of factors, including student preferences, variety in patient care experiences, and program needs.

The Office of Clinical Education monitors the quality and quantity of patient encounters for each student. All students must satisfy a minimum number of contact lens patient encounters during the course of their final-year assignments. Some students may be assigned to contact-lens-specific sites in order to assure a broad clinical experience. Clinical preceptors evaluate students twice per quarter with the expectation that all levels of performance will progressively increase through the year.



Primary Care (ECP4916, ECP4917, ECP4918, and ECP4919)

Instructor: Erik Weissberg, OD, FAAO

Clinical sites that provide comprehensive eye care services for patients of all ages are categorized as Primary Care sites. Typically, these sites are community health centers, community clinic, or private optometric practices.

Advanced Care (ECP4921, ECP4922, ECP4923, and ECP4924)

Instructor: Erik Weissberg, OD, FAAO

Clinical sites that provide comprehensive eye care services in hospitals or surgical centers and have associated medical staff are categorized as Advanced Care sites. These include Veterans Affairs hospitals, surgical centers, and eye institutes.

Specialty Care (ACC4961, ACC4962, ACC4963, and ACC4964)

Instructor: Erik Weissberg, OD, FAAO

Clinical sites that provide professional specialty care are categorized as Specialty Care clinics. These include clinics specializing in visual therapy/binocular vision, contact lenses, pediatrics, geriatrics, patients with disabilities, or low vision. The College's Special Populations rotation provides training in many of these specialty areas.

Graduate Research Studies Courses

Biostatistics and Experimental Design I (GRS97003)

Instructor: Christopher Taylor, B.Sc., Ph.D.

This course presents the common parametric and non-parametric statistical tests performed in the Health Professions. Topics include: probability theory, normal & non-normal distributions, drawing inference with t-test, ANOVA, correlation and regression, chi-square test, and sample size determination. The emphasis will be more on concepts and applications than on computations and statistical theory. This course will provide students with a strong foundation in basic statistical reasoning that will help them in more advanced courses.

Biostatistics and Experimental Design II (GRS97004)

Instructor: Christopher Taylor, B.Sc., Ph.D.

This is an application-oriented course designed to demonstrate how to use IBM SPSS to conduct statistical tests employed in common research designs in the health sciences that were introduced in GRS97003 (Biostatistics and Research Design I). Students are encouraged to bring their own data sets and research questions to enhance their understanding of biostatistics.

Graduate Research Seminars I-IV

These seminars present graduate-level material in each of the three major core content areas (biological science, optics, and visual psychophysics) in which MS students may conduct their research projects. In addition, there is a seminar on selected topics, usually on the development of refractive state and myopia, reflecting a large proportion of the research currently being conducted at the College. Students will be letter-graded on participation in the seminars and the quality of required presentations and/or papers. The general seminar topics are as follows:



Graduate Research Seminar I: Biomedical Research in Vision (GRS97020)

Instructor: Steven Koevary, PhD

This seminar examines selected areas of recent biological research in vision. Current advances in methodology, specifics of research design, and impact of research findings will be emphasized. Selected topics are based on participating faculty expertise and include ocular immunology, diabetic retinopathy, nutrition and the eye, ocular circadian rhythms, anterior segment physiology, regulation of IOP and glaucoma.

Graduate Research Seminar II: Optics in Vision (GRS97021)

This seminar discusses current research in visual optics with concentrations on theory and method of non-invasive techniques for measuring the optical characteristics of the eye and the functional characteristics of the eye's optics. Topics include optical aberrations of the eye and their role in vision, optical characteristics of blur, optical limitations on neural processing, and optical imaging methods.

Graduate Research Seminar III: Special Topics-Eye Growth (GRS97022)

Instructors: Debora Nickla, PhD and Frances Rucker, MSc, PhD

This seminar surveys and critiques the recent experimental and epidemiological research on the control of eye growth and the development of refractive state. Topics include the visual regulation of eye growth, emmetropization and refractive error development, animal models of myopia, the biochemistry and biomechanics of eye growth, and the genetics of eye growth and refractive error development. Occasionally, other special topics in vision science may be selected.

Graduate Research Seminar IV: Visual Neurophysiology and Development of Vision (GRS97023)

Instructors: Glen McCormack, OD, PhD, Thanasis Panorgias, MSc, PhD, FAAO

This seminar covers a wide range of material examining recent work on the neurophysiology of the visual system in health and disease. Emphasis is placed on the development of visual system functions. Topics include binocular vision, strabismus and amblyopia, control of eye movements and accommodation, color vision and color vision defects, retinal processing and spatial vision.

Laboratory Research I-IV

Instructor: Glen McCormack, OD, PhD

The MS program at New England College of Optometry emphasizes the development of the technical, analytical, and problem-solving skills necessary for successful research in vision science. Accordingly, actual hypothesis-driven experimental research in the laboratory or clinic is the centerpiece of the program. This research is oriented toward the development, execution, and completion of a Master's thesis. The courses in the Laboratory Research I-IV sequence are essential for carrying out the planning, data collection and data analysis necessary to complete the thesis research project. Each course is graded Pass/Fail.

Laboratory Research I (GRS97040)

Four hours/week minimal lab work is required for Laboratory Research I. FWS and non-FWS funds may be available for additional hours. The student should be working with the advisor in the planning of the thesis research project, including obtaining permission for use of human or animal subjects by the Institutional Review Board (IRB) or the Institutional Animal Care and Use Committee (IACUC), respectively. By the end of the semester, the student should have a clear understanding of what the laboratory does and the potential research projects available. Plans for the summer research project should be formulated. Any laboratory changes should be requested before the end of the semester.



Laboratory Research II (GRS97041)

Four hours/week minimal lab work is required for Laboratory Research II. FWS and non-FWS funds may be available for additional hours. The student should be collecting and analyzing data for the thesis project and be planning for additional data collection with the MS advisor. By the end of the semester, the student should know what needs to be done to collect the remaining data for the project.

Laboratory Research III (GRS97042)

Four hours/week minimal lab work is required for Laboratory Research III. FWS and non-FWS funds may be available for additional hours. The student should be collecting and analyzing data for the thesis project and reviewing results with the MS advisor. By the end of the semester, data collection should be complete or near complete. The student should start working on thesis organization.

Laboratory Research IV (GRS97043)

Four hours/week minimal lab work is required for Laboratory Research IV. FWS and non-FWS funds may be available for additional hours. The student should be finalizing data analysis for the thesis project and reviewing results with the MS advisor. The student should continue working on thesis organization and begin preliminary thesis writing.

Laboratory Research Survey (GRS97001)

Instructor: Glen McCormack, OD, PhD

This course provides an overview of the basic areas of research conducted at the College and potentially available to students in the MS program. In separate lectures, graduate faculty will discuss the details of their research, including the major hypotheses and findings, and representative research designs and procedures. OD students may take the course for additional credits. A short paper is required for credit; the course is graded Pass/Fail.

Research Colloquia (GRS97010, GRS97011, GRS97012, GRS97013)

Instructor: Thanasis Panorgias, MSc, PhD, FAAO

Colloquia are held throughout the academic year. The series features invited lectures on a wide variety of topics by an international group of researchers. Whenever possible, graduate students participate in discussions with the speaker. These courses are graded Pass/Fail.

Thesis Preparation I and II

Instructor: Jane Gwiazda, PhD

The MS degree in Vision Science from the New England College of Optometry establishes that the holder has undertaken and reported a substantial piece of original research under the supervision and guidance of a graduate faculty advisor. All MS degree candidates are required to submit a written research thesis in partial fulfillment of the requirements for award of the degree. The thesis must provide evidence that the candidate is capable of independently conceiving, designing and carrying to completion a research program or project.



Thesis Preparation I (GRS97050)

This course is an independent study involving preparation of the thesis. The thesis must include a cover and title page, abstract, table of contents, introduction of the thesis topic with a comprehensive review of the literature, appropriately organized methods, results, and discussion sections for the experiments performed, and a final conclusions section summarizing the outcome of the project. The student should submit a draft of the thesis to the advisor by the end of the semester. Plans should be in place for the thesis examination to be held in the spring semester. This course is graded Pass/Fail.

Thesis Preparation II (GRS97051)

This course is an independent study involving final preparation of the thesis. A completed thesis, ready for binding, must be submitted to the thesis advisor, thesis committee members and to the Director of Library Services. For the MS student to be recognized at commencement, a thesis examination must be completed by March 31 and the final version of the thesis must be submitted in early May during the spring semester of the fourth year for the OD/MS program, or the second year in the stand-alone MS program. This course is graded Pass/Fail.

Thesis Proposal (GRS97031)

Instructor: Jane Gwiazda, PhD

At the end of the semester in May of the second year (OD/MS program), or at the end of January of the first year for the stand-alone MS program, each student must submit to the Graduate Studies Committee (GSC), with the signed approval of the advisor, a thesis proposal defining the thesis project, the methods and design of the experiments needed for completion, the progress to date, and plans for completion. The GSC reviews the thesis proposals. The course is graded Pass/Fail.

Thesis Proposal Development (GRS97030)

Instructor: Jane Gwiazda, PhD

Thesis Proposal Development is an independent tutorial conducted by the student's advisor, and involves a comprehensive literature survey of the chosen research area. Through regular meetings, the student and advisor discuss this literature in detail, and the student writes a paper, reviewed by the advisor, summarizing the literature. This paper should help in the development of the thesis proposal and thesis. The course is graded Pass/Fail.

Primary Care Courses

Advanced Procedures (PC32005)

Instructor: Elena Z. Biffi, OD, MSc, FAAO

The Advanced Procedures course is a computer and laboratory based course designed to introduce optometry students to advanced screening, diagnostic, and therapeutic techniques. Skills covered in this course add upon the basic examination techniques taught in the first and second year Principles and Practices of Optometry (PPO) series and Ocular Disease Principles (ODP) series. The five topic areas covered include: lacrimal dilation and irrigation, A-scan and B-scan ultrasound, corneal foreign body removal, scleral depression and Intravenous (IV) and Intramuscular (IM) injections.



Clinical Reasoning Ia (PC12041)

Instructor: Aurora Denial, OD

This is a core course for all first-year students. It is mainly lecture-based and provides foundational information for the entire sequence of clinical reasoning courses. The purpose of this course is to develop an appreciation and skill set for clinical and critical thinking, which can be applied to problem solving and ethical decision making. The course includes a group project which involves working with a volunteer “personal patient” who provides real life health and ocular conditions. One grade (letter grade) will be issued at the end of the spring semester. A criterion for grading has been established if a student does not complete the two semesters.

Clinical Reasoning Ib (PC12042)

Instructor: Aurora Denial, OD

This is a core course for all first-year students. The spring course is a small group discussion format highlighting case discussions and “personal patient” presentations by students. This course emphasizes application of strategies learned in the fall. This course will help to develop the cognitive skills needed for patient care. One grade (letter grade) will be issued at the end of the spring semester.

Clinical Reasoning II (PC22041)

Instructor: Aurora Denial, OD

This is a core course presented to students at the end of their second year of study. The purpose of the course is to develop the clinical thought process and integration of knowledge. This course emphasizes forming a differential diagnosis and an appropriate data base. Skills learned in the first-year course, along with clinical experience, are applied to cases and presentations. The course is graded pass or fail.

Clinical Reasoning III (PC32041)

Instructor: Aurora Denial, OD

This is a core course for all third-year students. This course emphasizes all aspects of clinical reasoning and patient care, with special attention to diagnosis and management of ocular diseases/conditions. The course is graded pass or fail.

Clinical Ocular Imaging Topics (PC32500)

Instructor: Elena Biffi, OD, MS

Clinical Ocular Imaging Topics is a lecture course designed to provide third year optometry students with the foundation for imaging-driven diagnostic approach to clinical care. The course will promote: 1) an integrated approach to understanding of disease conditions; 2) a unification strategy of various Ocular Imaging modalities (fundus photography, OCT, visual field, Fundus Autofluorescence (FAF) and ultrasound (taught in Advanced Diagnostic Techniques course)). Via interactive discussions and case-based presentations students will learn how data extracted from an instrument can transform into valuable clinical information used in patients’ management and every-day clinical decision making. Topics covered in this course include: diagnosis and management of Glaucoma, Macular Degeneration, Diabetes and other systemic disorders, macular disorders and retinal abnormalities. In addition, the course will explore a ground-breaking area in the field of Optometry co-relating retinal neuro-vascular unit and cerebral neuro-vascular unit.



Introduction to Clinical Care (PC22080)

Instructor: Bina Patel, OD

This intent of this course is to assimilate previously-acquired optometric skills, both educational and via clinical practice, into American-based optometry, including terminology, aspects of public health, visual field and application, and an introduction to billing procedures and standards of care. Credentialing in order to proceed to patient care is achieved upon successful completion of this course.

Ophthalmic Business and Management Policy I (PC22701)

Ophthalmic Business and Management Policy II (PC32702)

Instructor: David Mills, OD, MBA

These courses endeavor to teach students the knowledge, skill, and background required to manage an ophthalmic business in all eye and health care delivery systems. Topics include goal setting, patient communication, office design, accounting and finance in an optometric setting, fee computation, practice purchase valuation, human resources, relevant business law, professional liability and risk management, and marketing. The development of a formal business plan is required.

Principles and Practice of Optometry I and II (PC12020)

Instructor: Fuensanta Vera-Diaz, OD

Principles and Practice of Optometry I and II is a team taught course that, along with the course Principles and Practice of Optometry III prepares AODP students to participate in Patient Care 1 (vision screenings) and Patient Care 2 clinical assignments by teaching them the basic principles of clinical science and patient care. In these three courses, the student will acquire the knowledge, technical skills, professional attitudes and ethics needed to participate in patient care. Principles and procedures learned in PPO-I, II, III provide the foundation for what optometrists do every day in clinical practice and for many courses that come later in the NECO curriculum.

Principles and Practice of Optometry I (PC12021)

Principles and Practice of Optometry II (PC12022)

Instructor: Fuensanta Vera-Diaz, OD

Principles and Practice of Optometry (PPO) I is the first of three team taught courses (PPO-I, II and III) that prepare first year students to participate in Patient Care 1 (vision screenings) and Patient Care 2 clinical assignments by teaching them the basic principles of clinical science and patient care. In these three courses, the student will acquire the knowledge, technical skills, professional attitudes and ethics needed to participate in patient care. Principles and procedures learned in PPO-I, II, III provide the foundation for what optometrists do every day in clinical practice and for many courses that come later in the NECO curriculum.

Principles and Practice of Optometry III (PC22023)

Instructor: Hilary Gaiser, OD, MSc

Principles and Practice of Optometry (PPO) III is the third of three courses (PPO-I, II and III) that prepare first year students to participate in Patient Care 2 clinical assignments by teaching them the basic principles of clinical science and patient care. In these three courses, the student will acquire the knowledge, technical skills, professional attitudes and ethics needed to participate in patient care. Principles and procedures learned in PPO-I, II, III provide the foundation for what optometrists do every day in clinical practice and for many courses that come later in the NECO curriculum. PPOIII consists of lecture, lab and clinical simulation.



Public Health (PC12405)

Instructor: Diane Russo, OD, MPH, FAAO

The content of this course is a requisite for all first-year students and requires a passing grade to meet satisfactory completion of the first-year curriculum. The instructors have expertise in public health aspects of clinical care. This course presents social, ethical, and policy issues to optometrists-in-training at the beginning of their first professional year, prior to their being exposed to patient care. The course is designed to provide the underpinnings to practicing the profession of optometry in a caring, competent manner within the current health care environment.

Vision Health Care Ia (PC12401)

Instructor: Diane Russo, OD, FAAO and Gary Chu, OD, MPH

The content of this course is a requisite for all first-year students and requires a passing grade to meet satisfactory completion of the first-year curriculum. The instructors have expertise in public health aspects of clinical care. This course presents social, ethical, and policy issues to optometrists-in-training at the beginning of their first professional year, prior to their being exposed to patient care. The course is designed to provide the underpinnings to practicing the profession of optometry in a caring, competent manner within the current health care environment.

Vision Health Care Ib (PC12402)

Instructor: Gary Chu, OD, MPH

This one-credit course consists of two graded projects. The first is a community analysis project, in which each student identifies a community's need for eye care services, based on a demographic, socio-economic analysis of the community's population. Students assess the supply of eye care services by determining the number of FTE providers who are available to the public at-large, or who are limited in either their scope of practice or their availability to provide services to the community. Each student is required to identify and to conduct two in-depth interviews with optometrists from his or her community.

The second project is a group public health project in which each group, under the guidance of a faculty advisor, identifies a public health issue within the scope of this project. The project can be an assessment that quantifies the magnitude and importance of the problem, or it can identify elements of the problem that are amenable to intervention, or it can include an intervention in which the impact is a measurable outcome. The group summarizes their project in a standard poster format and presents it in a competitive poster session that is judged by public health experts from the Greater Boston community.

Specialty and Advanced Care Courses

Advanced Contact Lenses (SAC23005)

Instructor: Ronald Watanabe, OD

Contact lenses are an essential part of optometric practice; not only for practice success, but also in the management of certain ocular conditions that require visual or therapeutic rehabilitation. This course covers advanced contact lens topics for the optometry student who has previous contact lens practice experience. Topics include soft and rigid gas permeable toric lenses, multifocal lenses, specialty lenses for irregular corneas, and contact lens related complications. Self-study is the key to maximizing learning and success in this course.



Binocular and Accommodative Anomalies (SAC33405)

Instructor: Stacy Lyons, OD, Glen McCormack, OD, PhD, Gayathri Srinivasan, MS, OD, FAAO

This lecture and laboratory course provides the student with the ability to diagnose as well as to initiate treatment for patients who present with non-strabismic binocular dysfunctions, accommodative anomalies, and non-pathologic oculomotor dysfunction. From a diagnostic perspective, it will integrate the clinical information gained in the PPO sequence with the theoretical and practical information covered in other courses discussing binocular vision. Treatment options discussed will include the judicious application of lenses and prisms, as well as an introduction to optometric vision therapy.

Contact Lenses I (SAC23002)

Instructor: Ronald Watanabe, OD

Contact lenses are an essential part of optometric practice, not only for practice success, but also in the management of certain ocular conditions that require visual and/or therapeutic rehabilitation. This course introduces the basic aspects of contact lens fitting to the optometry student. It begins with a review of corneal topography and anterior segment anatomy to set the stage for contact lens fitting. The course then covers the fitting of spherical rigid gas permeable and soft hydrophilic contact lenses. This includes lens materials, designs, and fitting processes that result in optimal vision and comfort. A hands-on laboratory provides practical experience with the various lens types, and online materials encourage independent learning.

Contact Lenses II (SAC23003)

Instructor: TBD

This course continues from Contact Lenses I with more advanced topics, including the fitting and management of soft and rigid gas permeable toric lenses, multifocal lenses, specialty lenses for irregular corneas, and contact lens related complications. A hands-on laboratory provides practical experience with the various lens types, including orthokeratology, scleral, and hybrid lens designs. Self-study is the key to maximizing learning and success in this course.

Development, Strabismus and Amblyopia (SAC33402)

Instructor: Erik Weissberg, OD

Normal and abnormal visual development from the basic underlying principles and supporting science to the diagnosis and management of clinical conditions resulting from abnormal development such as strabismus and amblyopia are presented. Basic topics include: the development of refractive errors, the normal and abnormal development of the neural visual system in animals, the effects of monocular eye closure, strabismus, anisometropia and astigmatism on the development of the visual system and visual behavior, the critical period for neural flexibility, the testing of vision in human infants, and research on the nature of vision in amblyopia and binocular vision loss. The course then takes a more clinical turn as it provides the student with an organized approach to the clinical evaluation and management of a patient with strabismus and/or amblyopia. Discussions focus on natural history, etiology, signs and symptoms, related characteristics, significance and practical management of amblyopia, esotropia, exotropia and noncomitant strabismus. There is special emphasis on the clinical decisions and procedures needed to recognize functional versus pathological etiologies with a lab component setting the stage for discussion and case analysis.



Low Vision Rehabilitation throughout the Life Span (SAC33203)

Instructor: Nicole Ross, OD, MSc, FAAO

This one-semester lecture and laboratory course provides an introduction to low vision rehabilitation throughout the life span with an emphasis on geriatrics. The course explores the role primary care optometrists have in treating the level 1 low vision patient with moderate visual impairment. The course also addresses how to refer the level 2 advanced low vision patient for comprehensive low vision care. The strategies for low vision care include the functional low vision evaluation, the low vision device selection, and patient management. Interactive laboratories provide hands-on experience and practice performing the low vision methods of evaluation.

Pediatric Optometry (SAC33605)

Instructor: Nicole Quinn, OD

The Pediatric Optometry course prepares the student to understand, diagnose, and manage vision problems found in children. Topics include examination techniques used for infants and toddlers, diagnosis and management of refractive error and ocular disease in children, child development, learning-related vision problems, evaluation of children with disabilities, and the ocular and systemic manifestations of child abuse. Seminars will provide hands-on opportunities to reinforce techniques and concepts discussed in lectures. At the conclusion of the course, students will have the foundation needed to deliver high-quality eye care to their pediatric patients.

Strabismus and Amblyopia (SAC33483)

Instructor: Erik Weissberg, OD

Normal and abnormal visual development from the basic underlying principles and supporting science to the diagnosis and management of clinical conditions resulting from abnormal development such as strabismus and amblyopia are presented. Basic topics include: the development of refractive errors, the normal and abnormal development of the neural visual system in animals, the effects of monocular eye closure, strabismus, anisometropia and astigmatism on the development of the visual system and visual behavior, the critical period for neural flexibility, the testing of vision in human infants, and research on the nature of vision in amblyopia and binocular vision loss. The course then takes a more clinical turn as it provides the student with an organized approach to the clinical evaluation and management of a patient with strabismus and/or amblyopia.

Discussions focus on natural history, etiology, signs and symptoms, related characteristics, significance and practical management of amblyopia, esotropia, exotropia and noncomitant strabismus. There is special emphasis on the clinical decisions and procedures needed to recognize functional versus pathological etiologies with a lab component setting the stage for discussion and case analysis.



Vision Science Courses

Advanced Visual Sensation and Perception (VS11222)

Instructor: Thanasis Panorgias, MSc, PhD, FAAO

This course covers the basic visual neurophysiology and describes the visual pathway from the retina to the cortex. Light sensitivity and dark and light dark adaptation mechanisms are discussed. Color vision and color vision deficiencies are explained along with the theory behind color vision tests. Spatial vision and limiting factors of visual acuity and contrast sensitivity are covered. Temporal sensitivity and time-related phenomena are explained. Psychophysical methodology used for vision testing is covered. Signal detection theory and differences between sensitivity and specificity are explained. Motion, size, depth, and scene perception, visual illusions and entoptic phenomena are discussed. Extrastriate brain activity related to visual information processing is covered. Finally, the aging of the visual system (media, retina) and visual function are discussed.

Binocular Vision and Ocular Motility (VS21203)

Instructor: Glen McCormack, OD, PhD

This course presents elements of binocular vision and ocular motility. Binocular vision topics include oculocentric and egocentric localization, binocular correspondence and the horopter, fusion and Panum's areas, binocular rivalry and suppression, depth cues and stereopsis, stereoacuity, and the pathophysiological aspects of strabismus, amblyopia, and stereoblindness. The ocular motility material includes principles of saccadic, pursuit, vestibular, optokinetic, vergence, and accommodative movements and addresses the anatomical, kinematic, physiological, cybernetic, and pathophysiological properties of ocular motility. Laboratory sessions support the lecture material with hands-on experiments.

Color Vision (VS11210)

Instructor: Thanasis Panorgias, MSc, PhD, FAAO

This course presents the evolution of trichromatic vision and trichromatic theories. Neurophysiology for color perception is covered. Color discrimination, mixture and appearance are explained. Theory of color spaces and chromaticity coordinates are covered. Inherited and acquired color vision deficiencies and theory of color vision tests are covered. Societal and vocational implications of color vision defects are discussed.

Lectures in Binocular Vision (VS21217)

Instructor: Glen McCormack, OD, PhD

This course presents elements of binocular vision. Topics include oculocentric and egocentric localization, binocular correspondence and the horopter, fusion and Panum's areas, binocular rivalry and suppression, depth cues and stereopsis, stereoacuity, and the pathophysiological aspects of strabismus, amblyopia, and stereoblindness.

Lectures in Ocular Motility (VS21218)

Instructor: Glen McCormack, OD, PhD

This course presents elements of ocular motility. Topics include principles of saccadic, pursuit, vestibular, optokinetic, vergence, and accommodative movements and addresses the anatomical, kinematic, physiological, cybernetic, and pathophysiological properties of ocular motility.



Neural Basis of Vision (VS21207, VS21291)

Instructor: Thanasis Panorgias, MSc, PhD, FAAO

This course shows how the retina and the brain work together to produce human vision. The course starts with the encoding and transmission of information through single neurons in the visual system, and the relationship between this information and specific aspects of human vision. The central visual system and a variety of higher cerebral cortex areas are examined with an emphasis on functional MRI for their role in vision, visually-guided behavior, visual decision making and visual learning. Upon completing this course, a student should feel comfortable with his or her understanding of how an image on the retina is translated into visual information and how the brain processes the information.

Optics I (VS11001)

Instructor: David Rio, MSc, PhD

This course provides the student with the basic theory of optics as it relates to optometric refraction, ophthalmic corrective lenses, ophthalmic instruments, and low vision devices. In addition, the course covers the optical properties of the eye and the techniques used for assessing these properties. Topics include vergence, refraction, reflection, ray tracing, prisms, thin and thick lenses, mirrors, optical models of the eye, refractive errors, and optical effects of correcting lenses. Laboratory sessions support the lecture material with hands-on experiments.

Optics II (VS11002)

Instructor: David Rio, MSc, PhD

This course emphasizes the application of geometric optics to the properties of ophthalmic lenses, including the imaging properties of sphero-cylindrical lenses, base curves, lens thickness, magnification properties, lens shapes, and prismatic effects of lenses. Additional material covers principles of ophthalmic optical devices for low vision, including the magnification and field properties of telescopes and magnifiers. Lensometry skills, eyewear design, and the production of eyewear are included in the laboratory.

Optics IIIa (VS21015), Optics IIIb (VS21016)

Instructor: David Rio, MSc, PhD

This course covers physical optics, aberrations, and light measurement. Topics include light scatter, polarization, interference, diffraction, and factors that set limitations on the sensitivity and resolving power of optical instruments, including the eye. Additional material covers measurement of light, ambient radiation, lasers, photic damage to the eye, wavefront aberrations and optical quality, and advanced ophthalmic imaging methods.

Optics A (VS11081)

Instructor: David Rio, MSc, PhD

The objectives of the Optics A course are to provide students with the basic science and skills of optics with geometric and physical properties which are necessary for understanding refraction, ophthalmic lenses, ophthalmic instruments and the human eye's optical system. This course will cover traditional optics including geometric optics, physical optics, and visual optics. The topics will be related to the clinical examination of optical and visual function. Fundamental principles, concepts, and equations will be presented in the lecture sessions, and sample problems will be solved in class. Additional material covers measurement of light, ambient radiation, lasers, photic damage to the eye, wavefront aberrations and optical quality, and advanced ophthalmic imaging methods. The laboratory sessions support the lecture material with hands-on experiments.



Optics B (VS21082)

Instructor: Blair Wong, ABOM

This course emphasizes the application of geometric optics to the properties of ophthalmic lenses including the imaging properties of spherocylindrical lenses, base curves, lens thickness, magnification properties, lens shapes, and prismatic effects of lenses. Lensometry skills, eyewear design, and the production of eyewear are included in the laboratory.

Solving Complex Refractive Issues (VS31006)

Instructor: Blair Wong, ABOM

This course presents the optometric approach to optimal patient care through the clinical visualization, analysis, application and ultimate design specific to ophthalmic prescription eyewear and contact lenses. A thorough review of intermediate level optics will be presented in the beginning of the course as a means to prepare students for case analyses involving anisometropia, aniseikonia, post-cataract care and post corneal surgical considerations. Upon completion of this course, students will develop a greater understanding for the delivery of optimal optometric patient care, and analyze patients' eye care and eyewear needs in regards to refraction, frame selection, and ophthalmic lens selection.

Visual Development (VS21292)

Instructor: Christopher Taylor, B.Sc., Ph.D.

This course presents the development of normal and abnormal vision, from the basic underlying principles and supporting science to the diagnosis and management of clinical conditions resulting from abnormal development, such as strabismus and amblyopia. Basic topics include: testing vision in human infants, the normal and abnormal development of animal's neural visual system, the effects of monocular eye closure, strabismus, anisometropia and astigmatism on the development of the visual system and visual behavior, and the sensitive period for neuroplasticity. Research on the nature of vision in amblyopia and binocular vision loss in patients is then described and related to the mechanisms revealed in the first parts of the course.

Visual Sensation and Perception (VS11221)

Instructor: Thanasis Panorgias, MSc, PhD, FAAO

This course covers the basic visual neurophysiology and describes the visual pathway from the retina to the cortex. Light sensitivity and dark and light dark adaptation mechanisms are discussed. Spatial vision and limiting factors of visual acuity and contrast sensitivity are covered. Temporal sensitivity and time-related phenomena are explained. The maximum sensitivity of the human visual system is discussed and psychophysical methodology used for vision testing is covered. Signal detection theory and differences between sensitivity and specificity are explained. Motion, size, depth, and scene perception, visual illusions and entoptic phenomena are discussed. Extrastriate brain activity related to visual information processing is covered. Finally, the aging of the visual system (media, retina) and visual function are discussed.



Elective Courses

Advanced Contact Lenses (ELC62001)

Instructor: Paul White, OD; and Ron Watanabe, OD

This elective course presents advanced contact lens and corneal science topics in a seminar and laboratory grand rounds format. Course topics build on the material covered in the required Contact Lens course to provide the student with a more substantial understanding of specialized topics. This course is highly recommended for those students who plan to pursue post-graduate residency training or specialty practice in contact lenses.

Advanced Methods in Diagnosis and Management of Dry Eye (ELC65010)

Instructor: Christen Kenrick, OD

Who comes to mind when we discuss the diagnosis of dry eye? Many of us think of older patients, post-surgical cases, chronic red eyes, and patients who are continually using artificial tears. However, these patients represent only a portion of the continuum of people who may experience changes in the ocular surface. The tear layer is the first refractive surface of the eye, and even minor alterations can lead to significant changes in visual performance. Therefore, we must consider optimizing the ocular surface in all patients who require visual precision, without waiting for them to become symptomatic.

American Academy of Optometry Experience (ELC61715)

Instructor: Aurora Denial, OD

This course allows students to choose 22 hours of educational programs from the American Academy of Optometry's annual meeting program. All educational programs are COPE approved and all courses, papers and published abstracts are peer reviewed. Students self-direct their learning in an individual and specific manner. One student may choose 22 hours of credit in the field of contact lenses whereas another may choose 22 hours in a variety of specialties.

Class time, outside of the AAO meeting will consist of two classes, each meeting for 2 hours in duration. Before the AAO meeting, students will attend a class meeting. This meeting will include an overlook of professional organizations, history of the Academy and provide students guidance for their course selection. Students will identify areas of interest and/or areas where they would like to augment their knowledge. The class is graded pass/fail. The requirements include one written report.

Clinical Ocular Disease Cases in Primary Care: Anterior Segment (ELC61705)

Instructor: Matthew J. Garston, OD

This elective is structured around an informal interactive discussion of conditions frequently encountered in a primary care optometry/ophthalmology H.M.O. practice. Emphasis is placed on presenting cases that reinforce diagnosis and management. Over 150 cases will be presented (about 6 cases per class hour). Excellent photos, complete case histories, treatment, and follow-up photos make up the base for this course.



Clinical Ocular Disease Cases in Primary Care: Posterior Segment and Glaucoma

Instructor: Matthew J. Garston, OD **(ELC61706)**

This elective is structured around an informal interactive discussion of conditions frequently encountered in a primary care optometry/ophthalmology HMO practice. Emphasis is placed on presenting cases that reinforce diagnosis and management. Over 150 cases will be presented (about 6 cases per class hour). Excellent photos, complete case histories, treatment, and follow-up photos make up the base for this course.

Co-Management of Refractive and Cataract Surgery (ELC67105)

Instructor: Lin Chia, OD

Every OD will be asked by a patient or acquaintance if they qualify for LASIK (sometimes mispronounced "LASIX"). In real-world practice, a majority of OD's will be presented with opportunities to co-manage patients with local surgeons. The goal of this 10-hour lecture series is to provide students with the foundation for this niche in eye care. We begin with a review of the current technologies in refractive surgery (e.g. LASIK/PRK/LASEK, CXL, RLE, premium IOL's). Students will learn how to apply their clinical knowledge to surgical cases, including how to determine surgical candidacy, the importance of an OD's role in pre- and post-operative care, and how to identify and manage complications.

Computer Based Training: Corneal Disease (ELC67006)

Instructor: William E. Sleight, OD

Ocular Disease Diagnostic Tutor (ODDT) A unique interactive computer based training program designed for in-depth self-study of a mixture of uncommon and unusual corneal diseases. This course can be taken concurrently with CBT: Retinal Disease.

Computer Based Training: Macular Dystrophies (ELC67009)

Instructor: William E. Sleight, OD

Ocular Disease Diagnostic Tutor (ODDT) A unique interactive computer based training program designed for in-depth self-study of a mixture of uncommon and unusual macular diseases.

Computer Based Training: Retinal Disease (ELC67007)

Instructor: William E. Sleight, OD

Ocular Disease Diagnostic Tutor (ODDT): A unique interactive computer based training program designed for in-depth self-study of a mixture of uncommon and unusual retinal diseases. This course can be taken concurrently with CBT: Corneal Disease.

Computer Based Training: Uveitis (ELC67008)

Instructor: William E. Sleight, OD

Ocular Disease Diagnostic Tutor (ODDT) A unique interactive computer based training program designed for in-depth self-study of a mixture of uncommon and unusual uveal diseases.

Laboratory Research Survey (ELC66001)

Instructor: Glen McCormack, OD, PhD

This course provides an overview of the basic areas of research conducted at the College and potentially available to students in the MS program. In separate lectures, graduate faculty will discuss the details of their research, including the major hypotheses and findings, and representative research designs and procedures. OD students may take the course for additional credits. A short paper is required for credit; the course is graded Pass/Fail.



Nutrition (ELC61003)

Instructor: Steven Koevary, PhD

We will discuss the nutritional pyramid, the roles of carbohydrates, fats, proteins, phytochemicals, zoochemicals, vitamins, and minerals in the diet, the relationship between diet and acute and chronic diseases, the role of zinc, xanthophylls, and various other combinations of vitamins on possible prevention of macular degeneration and cataract formation, the specific effects of salt and fat intake on the development of cardiovascular disease, stroke, diabetes, and cancer, and the USDA dietary guidelines for Americans. In all of our discussions, implications for ocular health will be highlighted.

Nutrition's Impact on Optometric Care (ELC61004)

Instructor: Whitney Catanio, OD, FAAO

This course will include a history and evolution of diet, particularly within the United States. We will discuss the basics of nutrition including differences between proteins, carbohydrates, fats, minerals and vitamins within the spectrum of a healthy diet. There will be an emphasis on the impact of nutrition on ocular disease, and ocular sequelae of systemic disease. Most importantly, this course should expand a student's knowledge of the psychology of patient care, including the use of motivational interviewing.

Presentation Skills for Health Professionals (ELC61005)

Instructor: Diane Russo, OD, FAAO

This course will focus primarily on public speaking skills geared toward the types of presentations given by students, residents, and practicing optometrists. Students will have the opportunity to practice their public speaking skills in a safe and supportive environment, where they will receive constructive critical feedback from the instructor and classmates. Students will also gain experience in self-evaluation, crafting verbal feedback to their classmates, and structuring written communication to variable audiences.

Principles and Practice of Ocular Imaging (ELC67003)

Instructor: Robert W. Dunphy, OD

Diagnostic imaging data has become the foundation for modern clinical practice. What was once a specialty test procedure has now become the clinical norm meaning providers must understand the role and potential that imaging means for patients. Patients now expect to be evaluated and assessed using latest technology. Clinicians need to know how to order and interpret diagnostic imaging studies. This course provides enrollees with an overview of the operational principles of various diagnostic imaging modalities and their application in the clinical evaluation of a variety of patient presentations. Students will learn how to operate and interpret imaging tests. Students will learn to differentiate among various potential diagnoses through appreciating the details in imaging data. Clinical case presentations illustrate the contribution each imaging modality makes in the development of a clinical diagnosis. Patient outcomes will be improved through earlier and more refined diagnoses made possible by these imaging modalities. Global understanding of disease pathophysiology is enhanced via presentation of structural changes occurring as a consequence of the disease process. This course will also enhance participants' understanding of interventions for ocular disease by demonstrating response to therapy as represented by different imaging modalities.

This course supports other courses in ocular disease by reinforcing understanding of the relationships between funduscopy appearances of abnormal ocular conditions with additional information revealed by diagnostic imaging.



Primary Care: Anterior Segment (ELC61710)

Instructor: Matthew J. Garston, OD

This elective is structured around an informal interactive discussion of conditions frequently encountered in a primary care optometry/ophthalmology HMO practice. Emphasis is placed on presenting cases that reinforce diagnosis and management. Over 150 cases will be presented (about 6 cases per class hour). Excellent photos, complete case histories, treatment, and follow-up photos make up the base for this course. Stereo views of several cases are presented.

Special Populations Experience Course: Advanced Contact Lenses (ELC63012)

Special Populations Experience Course: Individuals with Disabilities (ELC63013)

Special Populations Experience Course: Low Vision (ELC63011)

Special Populations Experience Course: Pediatrics (ELC63010)

Special Populations Experience Course: Vision Therapy (ELC63014)

Instructor: Alexis Malkin, OD, FAAO, Gayathri Srinivasan, OD, MS

This elective course focuses on the specialties of Optometry including; Pediatrics, Low Vision, Advanced Contact Lenses, Vision Therapy, and Individuals with Disabilities. Through weekly clinical mentor meetings, participation in the already existent Special Populations CEreal Thursday's grand rounds presentations, required self-study written papers, case presentations and journal clubs, the student will gain an earlier and stronger experience in these specialties. Moreover, through concurrent supporting clinical assignments with a mentor in one of their specialty clinics, the student will be able to apply the knowledge gained through these small group discussions and self-studies to patient care. Enrollment into this elective will be application based. The application evaluates interest, academic standing, and potential extra-curricular scheduling conflicts (e.g. VOSH, etc)

Vision beyond the Eyes: Brain Damage, Injury and Learning (ELC63020)

Instructor: Barry Kran, OD, FAAO

This one credit (A, B, C, Fail) elective, in which 50% of the grade is based upon participation and 50% on assignments, will meet weekly from after Spring break/boards until the last week of class and will cover vision issues related to pediatric brain damage, adult brain injury and vision and learning. Case study and literature review will be main sources of information that will be expanded upon during class time. Active discussion will be encouraged. There will be opportunities to review visual perceptual testing, pediatric testing, use of CVI surveys and how they tie into a clinical approach to the evaluation and how all of this information is used to best advocate the child. Dr. Raghuram (from Boston Children's Hospital) will overview Dyslexia and share the results of her current research in this area. She will also engage you on the topic of TBI/concussion via her findings from clinical practice and research. The last session will be devoted to cases presented by our current pediatric residents which may cover any of the topic areas of this elective..



Admissions

Admissions Process

All applicants to the Four-Year optometric programs now utilize the OptomCAS web application process. Using one centralized process, applicants can enter their data through OptomCAS and utilize the system to apply to various optometric programs. Special Programs: ASIP and AODP candidates submit their applications directly to the Admissions Office.

NECO Application Process at a Glance

- Select the academic program you wish to apply for at the New England College of Optometry.
- Check the academic requirements, application fees, and application deadlines for admission.
- For the Four-Year OD program, prospective students must apply online through OptomCAS centralized application process. The application deadline, including the Optometry Admissions Test (OAT), is March 15th of the year in which you wish to matriculate.
- Submit the NECO application fee of \$65.00 by paying online through Paypal or mailing in a payment.
- When the Admissions Committee finds an applicant that meets our admission standards, the applicant becomes a candidate and is invited to NECO for an interview. Personal interviews are a requirement.
- A candidate will be informed of the Admissions Committee's decisions within three weeks of your interview.
- Upon acceptance, send a deposit of \$1,000 (US) to the Admissions Office within 15 days of acceptance, of which \$750 will be available for refund before May 15th in the event you are unable to attend.

Equal Opportunity Policy

The New England College of Optometry (NECO) prohibits discrimination on the basis of race, sex, religion, age, ability, sexual orientation, or national origin in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of its programs and activities as specified by federal and state laws and regulations.

Which program is right for you?

NECO provides a strong academic and clinical program that prepares students for the future by timing and sequencing coursework and assignments with patient care experiences. The College offers a variety of programs for students: Four-year OD program, OD/MS program, OD/PhD program, MS in Vision Science program, Accelerated OD program for medical doctors and scientists, Advanced Standing International program for international optometrists or medical professionals, and an international MS/OD China program.

Apply to Programs

Four-year Doctor of Optometry Degree Program
Accelerated Optometric Degree Program
Advanced Standing International Program
MS/OD China Program
OD/MS Degree Program
MS in Vision Science Program
OD/PhD Degree Program



Academic Requirements

Doctor of Optometry Degree

Applicants to the Doctor of Optometry program need to demonstrate at least three years of undergraduate preparation. Within this period of study the student must have credits for the following specific coursework:

Course	Semester(s)		Quarter(s)
Biology (with lab)	2	or	3
Chemistry (with lab)	2	or	3
Physics (with lab)	2	or	3
Organic Chemistry (with lab)	1	or	2
Biochemistry	1	or	2
Microbiology	1	or	2
Calculus	1	or	2
Statistics	1	or	2
Psychology	1	or	2
English	2	or	3

Prerequisite courses form the entering knowledge base for our optometry program. Therefore, to demonstrate mastery of this knowledgebase, we require a grade no lower than C in these courses. If a grade of less than C is attained in a prerequisite course, the requirement may be waived if the student has received a score of no lower than 300 on the corresponding section of the Optometry Admissions Test (OAT). Prerequisite courses taken at a community college may be accepted; however, we strongly prefer courses taken at your College or University at which your degree will be conferred. Advanced Placement (AP) courses will be accepted if the degree-granting college has accepted the credit and the student has achieved a score of 4 or 5 on the College Board Advanced Placement Test. International Baccalaureate courses will be accepted if the degree-granting college has accepted credit and the student has achieved a score of 5, 6, or 7 on the IB Diploma Programme Examination.

Bachelor of Science in Optometry Degree

Students who have not earned a Bachelor Degree may be awarded the Bachelor of Science degree by the College, provided they have completed 12 semester hours of humanities, 12 semester hours of social sciences, and have met other requirements set forth by the College.

Among humanity and social science courses, the following are acceptable:

Humanities	Social Sciences
Language: Ancient and Modern	Psychology
Literature: Ancient, Modern Theory	Anthropology
Fine Arts	History of Civilization
Drama	Geography
Philosophy	Political Science
History of Philosophy	Economics
Historical Biography	Sociology
Theology	Criminology
History and Philosophy of Science	Jurisprudence
	Ethnology
	Demography
	Law
	Statistics
	History



Master of Science in Vision Science Degree (OD/MS or MS Stand Alone)

- BA or BS degree
- College transcripts indicating a minimum 3.0 GPA on pre-requisites for the OD program
- Optometric Admissions Test (OAT) or Graduate Record Exam (GRE) scores
- An admissions essay detailing the candidate's interests in the MS program
- Names and contact information for 3 references who can attest to the applicant's analytical or research skills

Accelerated Doctor of Optometry Program (AODP)

Applicants to the Accelerated Doctor of Optometry Program:

- Hold doctorate-level degrees in a science or medicine. Graduates of the program represent such diverse fields as physics, psychology, anatomy, biology, chemistry, biochemistry, electrical engineering, biomedical engineering, dentistry, and medicine.
- Demonstrate high scholarship in previous graduate study, as well as a firm career commitment to optometry.

Advanced Standing International Program (ASIP)

Applicants to the Advanced Standing International Program:

- Hold a degree from an optometric college recognized by the International Optometric and Optical League.
- Have at least two years of full-time optometric clinical experience following graduation from an optometry college and completed within four years prior to applying to NECO

Additional Application Information

OAT, The Optometry Admission Test (OAT) is a prerequisite entrance exam. Informational materials regarding the OAT can be acquired by contacting the testing program:

Optometry Admission Testing Program

211 East Chicago Avenue, 6th floor, Chicago, IL 60611-2678

Phone: 312-440-2693; 800-232-2159; Fax: (312) 587-4105 or <http://www.opted.org>

TOEFL, All applicants to the Four-year Doctor of Optometry program whose native language is not English and have attended post-secondary institution where the teaching is not in English are required to take the Test of English as a Foreign Language (TOEFL). Results of these tests should be sent directly to the Admissions Office at the New England College of Optometry. Personal score reports are not accepted. Information regarding the exam can be obtained by contacting:

TOEFL

P.O. BOX 6151, Princeton, NJ 08541-6151 (USA)

609-951-1100

Transfer Requirements

When openings in classes permit, the College will review applications for transfer from students who are currently enrolled in other accredited schools or colleges of optometry. Acceptance is contingent upon satisfactory completion of courses equivalent to those at the New England College of Optometry. Students requesting transfer must provide a personal statement with supporting documentation demonstrating a compelling need to transfer in order to complete their optometric education. The dean at the applicant's present optometry school is required to provide official acknowledgment of the student's request for transfer and certification of good academic standing.



Tuition and Fees

For the 2017-18 academic year (May 15, 2017 to May 19, 2018), the Board of Trustees of the New England College of Optometry has set the tuition and fees as follows. An allowance for books, equipment, and estimated living expenses are included, for the total cost of attendance.

Four Year OD Program	OD 2022 (First Year)	OD 2021 (Second Year)	OD 2020 (Third Year)	OD 2019 (Fourth Year)
Tuition*	\$41,756	\$41,756	\$41,756	\$41,756
Activity Fee	\$360**	\$350	\$350	\$350
Lab Fee	\$300	\$0	\$0	\$0
Equipment Fee	\$1,250	\$125	\$0	\$0
Health Insurance***	\$1,754	\$1,754	\$1,754	\$1,754
Books and Extra Equipment	\$1,420	\$2,220	\$300	\$0
Living Allowance	\$19,440	\$25,035	\$24,638	\$26,680
TOTAL	\$66,280	\$71,240	\$68,798	\$70,540

* This rate is effective for students enrolled in both the OD and MS/Vision Science Programs. The per credit hour rate is \$1,305.

** Includes a \$10 enrollment fee to the Massachusetts Society of Optometrists.

*** The cost of pro-rated health insurance fee listed will be updated shortly. The current fee is for a single student with no dependents. The fee can be waived with proof of alternative coverage.

Please contact Barbara McGinley at mcginleyb@neco.edu for more information.

Accelerated and International Programs

	AODP 2021	AODP 2020	AODP 2019	ASIP 2020	ASIP 2019
Tuition*	\$15,369	\$57,125	\$41,756	\$57,125	\$41,756
Activity Fee	\$0	\$350	\$350	\$350	\$350
Lab Fee	\$0	\$300	\$0	\$100	\$0
Equipment Fee	\$1,250	\$0	\$0	\$0	\$0
Health Insurance***	\$953	\$1,754	\$1,754	\$1,754	\$1,754
Books and Extra Equipment	\$1,270	\$1,820	\$0	\$2,580	\$0
Living Allowance	\$6,480	\$25,920	\$26,680	\$25,920	\$26,680
TOTAL	\$25,236****	\$87,269	\$70,540	\$87,069	\$70,540

* This rate is effective for students enrolled in both the OD and MS/Vision Science Programs. The per credit hour rate is \$1,305.

** Includes a \$10 enrollment fee to the Massachusetts Society of Optometrists for first year students.

*** The estimated cost of pro-rated health insurance fee listed is listed. The current fee is for a single student with no dependents. The fee can be waived with proof of alternative coverage. Please contact Barbara McGinley at mcginleyb@neco.edu for more information.

**** Costs shown are only for the quarter beginning February 25, 2019 and ending May 18, 2019.



MS in Vision Science	MS 2019	MS 2020
Tuition*	\$20,878	\$20,878
Activity Fee	\$350	\$350
Health Insurance***	\$1,754	\$1,754
Program Supplies	\$100	\$100
Living Allowance	\$19,440	\$19,440
TOTAL	\$42,422	\$42,422

* * For the MS Stand-Alone Program, this is an annual charge covering Fall, Winter, and Spring.

***The estimated cost of pro-rated health insurance fee is listed. The current fee is for a single student with no dependents. The fee can be waived with proof of alternative coverage. Please contact Barbara McGinley at mcginleyb@neco.edu for more information.

Payment Policy

All tuition and fees are due and payable on or before the first day of classes of each term, except for first-year students, which are due by August 15 of the year of entry. Students may not register or attend classes if tuition and fees are not paid in full or appropriate arrangements have not been made with the Chief Financial Officer at least two weeks prior to the beginning of the term. The College does not accept credit cards for the payment of tuition and fees.

Tuition Refund Policy

The College’s Tuition Refund Policy is as follows:

Withdrawal Date	Percentage of Tuition and Fees Refunded
Prior to the 1st day of the academic period	100%
During the 1st week	90%
During the 2nd to 3rd weeks	50%
During the 4th to 6th weeks	25%
After 6 weeks	0%

When calculating refunds, a reasonable administrative fee may be charged. This fee shall be the lesser of 5% of charges assessed the student or \$100.

* All fees, except for the mandatory equipment fee, are non-refundable. The equipment fee is refundable only if the equipment is returned intact and unopened within the first two weeks of the term.

Repeated Courses Tuition Charges

A student who is not registered full time in the term that the repeated course is given will be charged on a per credit basis for the repeated course as well as any other courses as applicable. A student who is registered full time in the term that the repeated course is given will not be charged additional tuition for the repeated course.

Extended Program Tuition Charges

A student whose program is extended will be subject to applicable tuition and fee charges. A student enrolled less than full time will be charged at a per credit rate.

Tuition and fees are subject to change without notice.



Financial Aid

The Office of Financial Aid assists students in obtaining scholarships, grants, and loans to help finance their education. Over 90% of all of our students receive student aid. Financial aid helps make up the difference between what you and your family are able to pay and the cost of education. The answers to most of your questions can be found in the College's Financial Aid Handbook, which serves as a complete guide and reference resource for all financial aid at NECO. The handbook can be found on the NECO website.

How to Apply

Financial aid is offered on the basis of need and availability of funds, so early application is encouraged. Please follow the steps below to be considered for the loan, scholarship, and employment programs administered by the Office of Financial Aid. You will follow this same process each year in which you want financial aid. Please note the deadlines and forms needed.

- Submit the Free Application for Federal Student Aid (FAFSA). Include your parents' information if you think your family is "economically disadvantaged" and you want to be considered for health professions and NECO low-interest loans (see below). NECO's FEDERAL COLLEGE CODE IS 002164.
- You will receive an output document generated by the Federal Office of Student Aid, known as the Student Aid Report.
- Review your Student Aid Report, read the comments, make sure your information is accurate, and make any necessary changes by following the directions. Contact the NECO Office of Financial Aid if you have questions, or if the SAR instructs you to do so.
- Download, print, complete, and submit a paper copy of NECO's Supplemental Information Form (for First Year Students Only) to the Office of Financial Aid. Include your parents' information if you wish to be reviewed for health professions loans and NECO low interest loans.
- Use the IRS Data Retrieval Process to import tax information to your FAFSA. Your application will be reviewed upon receipt of the aid applications and verification material, if required. The last day to submit applications and verification material is (insert date). Financial aid will not be offered until applications and verification documents are received and reviewed.

Review of Your Application

Your aid application will be reviewed upon receipt of your admissions deposit. You will receive your financial aid eligibility letter within two weeks of receipt of your completed application.

Contact Financial Aid

The Office of Financial Aid helps answer any questions related to the financing of your education. If you have any questions at any point during the process of applying for financial aid, please contact a member of our staff:

Carol A. Rubel, Director of Financial Aid at rubelc@neco.edu

Esther Bando-Gomes, Assistant Director at bando-gomese@neco.edu

Joann Reed, Administrative Assistant at reedj@neco.edu

Phone: 617-587-5582

Fax: 617-587-5553



Academic Policies

For information about the following policies and procedures, please consult the **Full Version of the Student Handbook found on the NECO website.**

- Degree Requirements
- Student Status Policies and Procedures
- Academic Distinction
- Academic Progress
- Academic Standing
- Academic Probation
- Resolution of Academic Probation
- Academic Warning
- Resolution of Academic Warning
- Clinical Probation
- Resolution of Clinical Probation
- Disciplinary Probation
- Resolution of Disciplinary Probation
- Inquiry Status
- Modified Status
- Student Request for Modified Program
- Requirements for Student Advancement
- Satisfactory Academic
- Standing/Progress and Financial Aid Eligibility
- Dismissal Policies and Procedures
- Academic Dismissal
- Clinical Dismissal
- Dismissal Hearing Policy and Procedure
- Appeal of Dismissal
- Consequences of Dismissal
- Grading Policies and Procedures
- Explanation of Grades
- Grade of I (Incomplete)
- Resolution of I Grade
- Grade of F (Failure)
- Resolution of F Grade
- Grade of AU (Audit)
- Exemption from Courses
- Repeat of a Course
- Withdrawal from Courses
- Clinical Grading
- Explanation of Grades
- Grade of F (Failure)
- Resolution of F Grade
- Grade of RM (Remedial)
- Resolution of RM Grade
- Grade of AU (Audit)
- Grade of I (Incomplete)
- Resolution of I Grade
- Repeat of a Clinical Course
- Exemption from Clinical Courses
- Withdrawal from Clinical Courses
- Submitting Grades
- Change of Grade Policy
- Notification of Grades
- Grade Point Average (GPA) Calculation
- Attendance and Tardiness Policies
- Absence Policies and Procedures
- Expected Absences
- Unexpected Absences
- Unauthorized Absences
- Absence to Attend Professionally Related Activities or Corporate-Sponsored Educational Programs/Events
- Absence Due to Jury Duty
- Absence from a Laboratory Session
- Absence from a Mandatory Class or Meeting
- Absence from Midterm and Final Examinations
- Absence Due to National Boards
- Absence from a Quiz
- Absence Due to Religious Observance
- Miscellaneous Processes and Policies
- Leave of Absence and Readmission
- Conditional Leave of Absence and Readmission
- Withdrawal
- Reapplication after Withdrawal or Dismissal
- Student Rights and Responsibilities
- Copyright Policy
- Disability Services



New England College of Optometry

Offices and Staff

New England College of Optometry

424 Beacon Street

Boston, MA 02115

Phone: 617-266-2030

Fax: 617-424-9202

Administrative Offices and Staff

To contact one of NECO's offices, please select a name below to email a question or use the phone number provided.

Academic Affairs

Sandra Mohr, Interim Dean, Academic Affairs, 617-587-5587

Admissions Office

Kristen Tobin, Director of Admissions, 617-587-5624

Paul Mills, Associate Director of Admissions, 617-587-5665

Communications

Ingrid Hoogendoorn, Director of Communications, 617-587-5722

Facilities

Mark Cataudella, Director of Campus Planning and Facilities, 617-587-5740

Financial Aid Office

Carol Rubel, Director of Financial Aid, 617-587-5582

Esther Bando-Gomes, Assistant Director, 617-587-5651

Human Resources

Elizabeth Davies, Director of Human Resources, 617-587-5587

Information Technology

Jill Lund, Director of Enterprise Technology, 617-587-5641

Ben Feingold, Director of Technology Support Services, 617-587-5689

Institutional Advancement and Alumni Relations

Tony Cavallerano, Director of Professional Relations, 617-587-5585

Margery M. Warren, Director of Alumni Relations, 617-587-5687

Student Services Office

Barbara McGinley, Associate Dean of Student Affairs, 617-587-5620



Academic Departments and Staff

Biomedical Science and Diseases

Chair: Steven Koevary, 617-587-5629

Clinical Education

Director: Erik Weissberg, 617-587-5750

Continuing Education

Director: Tony Cavallerano, 617-396-8598

Graduate Research Studies

Chair: Jane Gwiazda, 617-587-5781

International Programs

Director: Bina Patel, 617-587-5793

Library

Director of Library Services: Heather Edmonds, 617-587-5579

Primary Care

Chair: Aurora Denial, 617-587-5769

Registrar's Office

Registrar: Glenda Underwood, 617-587-5581

Residency Programs

Director: Doug Hoffman, 617-396-8577

Specialty and Advanced Care

Chair: Stacy Lyons, 617-587-5611

Vision Science

Chair: Glen McCormick, 617-587-5772



Board of Trustees

Pano Yeracaris, MD, MPH, Board Chair

Howard Purcell, OD, FAAO, Dipl., President

Myron Allukian, Jr., DDS, MPH

Cornelius (Con) Chapman, JD

Joan M. Exford, OD, DOS

Ronald R. Ferrucci, OD '74

Kristen Griebel, OD '97

Richard Heller, JD

Dorothy L. Hitchmoth, OD '96

Stephen N. Kirnon, MBA, EdD

Colin L. Leitch, MDiv

Kelly MacDonald, OD '01

Robert Meenan, MD, MPH, MBA

Rachel Negris, OD '84

Robert Ryan, CPA, CGMA

Richard N. Small, CPA

Joseph P. Zolner, EdD

Emeritus Members

Joseph J.F. Bickford, OD '65

Lester M. Brackley, OD '68

Frank DiMella, AIA

G. Burt Holmes, OD '52, LHD

Charles F. Mullen, OD '69, DOS

Adelbert O. Parrot, OD '34*

Paul B. Taylor, OD '55*

* *Deceased*

Corporators

Lester M. Brackley, OD '68

David J. Caban, OD '77

Michael J. Cohn, OD '77

Howard M. Coleman, OD '57

Matthew Elgart, OD '66

Elmer Freeman, BS, MSW

Fernando Hidalgo Santa Cruz, OD '87

Celia Anne Hinrichs, OD '79

Robert H. Honnors, OD '63

Barbara D. Kamens

Farooq A. Khan, OD '02

Cynthia P. Macdonald, JD

Jonathan Marcus, CFP®

David Miller, MD

Robert S. Miller, CFE, CPA

Joseph F. Molinari, OD '74, MEd

George L. Montminy, OD '69

Gerard Phelan

David A.V. Reynolds, DrPH, LHD

Irwin B. Suchoff, OD '59, DOS

Thomas Terry, OD '75



NOTICES

Non-Discrimination Notice

The Corporation affirms its policy that it will not unlawfully discriminate against students, employees, staff, faculty, or patients served by the Corporation on the basis of race, sex, religion, color, creed, disability, marital or parental status, sexual preference or national origin.

Professional Licensure and Certification Notice

Students who are pursuing degrees leading to application for professional licensure or certification and/or who will be participating in clinical placements or internships through their degree program should be aware that their host facility may require a criminal background check, fingerprinting, or drug screening. Although students at the College are required to have a background check before matriculating, the clinical site may require additional checks/screenings before commencement of clinical responsibilities. In the case of the latter, the student is responsible for obtaining and paying for the background check or other screening process and for delivering required documentation to the facility. Although the college will make reasonable efforts to place admitted students in clinical sites, it will be up to the host facility to determine whether a student will be allowed to work at that facility. Students should further be aware that a criminal record may jeopardize licensure by the state certification body. Students may consult the certification body for more details. Successful completion of a program of study at the New England College of Optometry does not guarantee licensure, certification, or employment in the relevant occupation.

Study in Clinical Settings

The New England College of Optometry's programs of study require as a condition of graduation the completion of training programs in a clinical setting, such as a hospital, community health center clinic, private practice, or school based clinic. Participation in these programs may require students to execute releases or contracts with the entity providing clinical services, which release it from liability and mandate that students comply with all requirements and regulations, such as health examinations and immunizations. The College assumes that students enrolling in courses involving outside clinical study will comply with such requirements and procedures.

3-4 Accelerated Program Partners

Students accepted into the 3-4 program will begin their studies at an undergraduate partner, following a prescribed curriculum. Following the third year of undergraduate studies, students will shift their studies to NECO for the four year OD program. While a student is enrolled in this program, there will be ongoing communication between the undergraduate partner and NECO through our work with campus liaisons and our peer mentor network.

Current Undergraduate Partners

- Assumption College, Worcester, MA
- Providence College, Providence, RI
- Siena College, Loudonville, NY
- Stonehill College, Easton, MA
- SUNY-Fredonia, Fredonia, NY
- University of Hartford, Hartford, CT
- University of Maine, Orono, ME
- Western New England University, Springfield, MA
- Wheaton College, Norton, MA

For more information on these and other partner programs, please contact the NECO Admissions Office.



Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. They are:

1. The right to inspect and review the student's education records within 45 days of the day the College receives a request for access. Students should submit to the Registrar, Dean, Head of the Academic or Clinical Departments/Offices, or other appropriate official, a written request that identifies the record(s) he/she wishes to inspect. The College official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the College official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request the amendment of the student's education records that the student believes is inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA. The student may ask the College to amend a record that he/she believes is inaccurate or misleading. A student who wishes to ask the College to amend a record should write the College official responsible for the record, clearly identify the part of the record the student wants changed, and specify why it should be changed. If the College decides not to amend the record as requested, the College will notify the student in writing of the decision and advise the student of his/her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
3. The right to provide written consent before the College discloses personally identifiable information from the student's education records, except to the extent that FERPA authorizes disclosure without consent.

One exception that permits disclosure without consent is the disclosure to college officials with legitimate educational interests. A college official is defined as a person employed by the College in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the College has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his/her tasks. A school official has a legitimate education interest if the official needs to review an education record in order to fulfill his/her professional responsibilities for the College.

1. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the College to comply with the requirements of FERPA.

As of January 3, 2012, the U.S. Department of Education's FERPA regulations expand the circumstances under which your education records and personally identifiable information (PII) contained in such records – including your Social Security Number, grades, or other private information – may be accessed without your consent. First, the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or state and local education authorities ("Federal and State Authorities") may allow access to your records and PII without your consent to any third party designated by a Federal or State Authority to evaluate a federal- or state-



New England College of Optometry

supported education program. The evaluation may relate to any program that is “principally engaged in the provision of education,” such as early childhood education and job training, as well as any program that is administered by an education agency or institution. Second, Federal and State Authorities may allow access to your education records and PII without your consent to researchers performing certain types of studies, in certain cases even when we object to or do not request such research. Federal and State Authorities must obtain certain use-restriction and data security promises from the entities that they authorize to receive your PII, but the Authorities need not maintain direct control over such entities. In addition, in connection with Statewide Longitudinal Data Systems, State Authorities may collect, compile, permanently retain, and share without your consent PII from your education records, and they may track your participation in education and other programs by linking such PII to other personal information about you that they obtain from other Federal or State data sources, including workforce development, unemployment insurance, child welfare, juvenile justice, military service, and migrant student records systems.

Administrative office for FERPA: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington, DC 20202-5920

Use of this Catalog

This catalog provides information to students but should not be considered a contract between a student and the New England College of Optometry. While we make every effort to provide information that is accurate at the time the catalog is prepared, changes may occur without prior notice in such areas as program offerings, curricula, tuition and fees, degree requirements, regulations and policies, schedules, courses, and other matters contained herein. Such changes may apply to students currently enrolled as well as to prospective students.