

**Master of Science  
in Vision Science and  
Investigative Ophthalmology  
2017-18**



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## About the Curriculum

The curriculum for the MVSIO degree has been designed to facilitate graduate student learning through several related components.

### CORE COURSES

Students will gain an understanding of the anatomy and physiology of the eye, cellular mechanisms and ophthalmic genetics, vision, optics and molecular ophthalmology.

### LABORATORY COURSES

Laboratory courses will include biochemistry, microbiology and pathology as applicable to ophthalmology.

### PROBLEM-BASED LEARNING

A unique feature of the MVSIO program is the problem-based learning courses. Three PBL modules will be offered in topics such as new approaches in genomics, genetics, lipidomics, regenerative medicine and proteomics. These multidisciplinary PBL modules will be taught primarily by faculty members from Bascom Palmer Eye Institute.

At least one course will describe historic accounts of successes and failures in drug or device discovery. Instructors will include guest lecturers with academic and industry experience as well as clinicians with substantial work in multidisciplinary translational research.

Students will be required to take a course in responsible conduct of research and research ethics. In addition, students will also learn about issues pertaining to animal use in research, including regulatory requirements through a PBL module with faculty from the Departments of Ophthalmology and Veterinary Resources and the Neuroscience Program.

The curriculum includes a PBL module focused on management tools for academic and commercial research, including grant writing, business plans, mergers and acquisitions.

### THESIS

A 7-credit thesis course will be required in the second year. Students will choose a mentor in the first year with whom they will work towards a thesis project (research project) in the second year. They will select a thesis proposal after rotation through the prospective mentor's laboratory.



## Coursework and Credits

OPH1	<b>Anatomy and physiology of the eye</b>	1
OPH2	<b>Pathology of eye diseases</b>	1
OPH3	<b>Ocular Pharmacology, Epidemiology, and Biostatistics</b>	1
OPH4	<b>Microbiology and Immunology of the eye</b>	1
OPH5	<b>Elective Course by selective offerings or remedial courses</b>	2
OPH7	<b>Ophthalmic Genetics</b>	1
OPH8	<b>Electrophysiology of the eye</b>	1
OPH9	<b>Vision and Optics</b>	2
OPH10	<b>Biochemistry, Cellular and Molecular Ophthalmology</b>	2
OPHL1	<b>Basic Biochemistry, Microbiology and Pathology</b>	3
OPHL2	<b>Basic and Applied Optics</b>	1
OPHL3	<b>Electrophysiology, Clinical Testing, and Applications</b>	1
OPH-PBL1	<b>Advanced and high throughput approaches in Science</b>	2
OPH-PBL2	<b>Management skills and Tools for Academia and Enterprises</b>	2
OPH-PBL3	<b>Animal models, Regulatory issues, and Research methods</b>	2
OPH-D	<b>Thesis</b>	7

## Selection Criteria

MVSIO candidates will be selected by the Ophthalmology Program Committee, led by Graduate Program Director Sanjoy K. Bhattacharya, M. Tech., Ph.D.

Candidates will be judged on their core competency, prior course work, leadership abilities, accomplishments, professional and personal experience, and academic excellence.

Applicant selection will be based upon past performance, letters of recommendation from former teachers, supporting material and interviews by faculty and student mentors. Some candidates will be interviewed using web-based programs such as Skype.

To matriculate from the first year to the second year of the MVSIO program, the student must successfully complete all courses in the first year with a grade B or better.

## Financing Your Degree

Some MVSIO students may receive full or partial tuition reimbursement through their companies or sponsors. Other students may obtain loans to finance their graduate education. Please visit [www.miami.edu/grad](http://www.miami.edu/grad) for more information.

For information on financial aid for U.S. citizens and international students, please visit [www.fafsa.ed.gov](http://www.fafsa.ed.gov), or call the University of Miami's Office of Financial Services at 305-284-5212.

## Application Information

Candidates are invited to apply for the 2017-18 session and must submit the following:

- **TRANSCRIPTS**

Candidates are required to hold a baccalaureate degree from an accredited college or university. Official transcripts for all undergraduate coursework, as well as any post-graduate coursework from each college or university attended, must be sent directly to the MVSIO office.

Applicants who received a degree from an international university must also provide a photocopy of the diploma and an official certified English translation of both the transcripts and the diploma, along with an original transcript in a sealed envelope from the attended university. An applicant whose native language is not English may be required to submit a TOEFL or IELTS score with the application. The TOEFL or IELTS requirement can be waived based upon a Skype interview for people proving their proficiency in English.

- **USMLE SCORE**

Medical degree holders should submit a step 1 score of USMLE at the time of application. This may be waived by the admission committee on a case-by-case basis.

- **PERSONAL STATEMENT**

A personal statement is required as part of the application.

- **LETTERS OF RECOMMENDATION**

Three letters of recommendations are required. These should be from former teachers evaluating a candidate's knowledge of science and/or medicine, analytical skills and other qualities.

- **APPLICATION**

The application for admission is submitted electronically through the online application at [www.biomed.med.miami.edu](http://www.biomed.med.miami.edu)



**Eduardo C. Alfonso, M.D.**  
Chair, Bascom Palmer  
Eye Institute



**Vittorio Porciatti, D.Sc.**  
Vice Chair of Research



**David T. Tse, M.D.**  
Vice Chair of  
Administration and  
Strategic Planning  
Chief Mentor, MVSIO



**Sanjoy K. Bhattacharya,  
M. Tech., Ph.D.**  
Graduate Program  
Director MVSIO

### FOR FURTHER INFORMATION, CONTACT:

**Sanjoy K. Bhattacharya, M. Tech., Ph.D.**  
*Graduate Program Director  
Master of Science in Vision Science  
and Investigative Ophthalmology*  
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# MVSIO

## Learning at Bascom Palmer

*Add research training to your clinical skills*

*Build credentials for medical school or  
doctoral studies*

*Broaden your skill set in academic medicine*

*Develop the perspective of a research manager*

*Gain a better understanding of  
grant applications and business plans*



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[bascompalmer.org](http://bascompalmer.org)

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