

# OPHTHALMOLOGY, VISUAL AND ANATOMICAL SCIENCES

Office: 8374 Scott Hall; 313-577-1061

Chairperson: Linda D. Hazlett

<http://www.anatomy.med.wayne.edu/>

The Ophthalmology, Visual and Anatomical Sciences (OVAS) Program provides training in the study of dynamic biological processes using cellular, molecular, behavioral, and imaging approaches. Faculty members are active in an extensive array of research areas, including the visual sciences, neuroscience, cell and developmental biology, immunology and infectious disease. The department offers two graduate degrees, both of which require the successful completion of courses. For the Ph.D. degree, dissertation research is performed in the laboratory of a faculty member with all requirements generally completed in four to five years. The M.S. degree offers two tracks: Research (Neuroscience or Visual Sciences) and Teaching, either of which can be completed within two years. In addition, students admitted to the School of Medicine (<https://www.med.wayne.edu/>) can pursue M.D./M.S. or M.D./Ph.D. degree, typically completed in five or seven years, respectively. While acceptance to the Ph.D. and M.S. programs is contingent upon admission to the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/admission/>), applications are submitted directly to the Department of OVAS.

BERGER, ELIZABETH: Ph.D., Wayne State University; B.S., Michigan State University; Assistant Professor (Research)

BERKOWITZ, BRUCE: Ph.D., M.A., Washington University; B.A., University of Rochester; Professor

BRAUN, RODNEY D.: Ph.D., M.S., Northwestern University; B.S., Rose-Hulman Institute of Technology; Associate Professor

GOEBEL, DENNIS: Ph.D., M.S., Wayne State University; B.S., Central Michigan University; Associate Professor

HAZLETT, LINDA D.: Ph.D., Ohio State University; M.S., Medical College of Georgia; B.S., St. Mary's College; Professor and Chair

HOLT, AVRIL GENENE: Ph.D., M.S., University of Michigan; B.S., Stillman College; Associate Professor

ICHINOSE, TOMOMI: M.D., Hamamatsu University; Ph.D., Tokyo Medical and Dental University; Assistant Professor

INSOLERA, RYAN: Ph.D., Weill Cornell Medical College; B.S., University of Michigan; Assistant Professor

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KOWLURU, RENU: Ph.D., Central Drug Research Institute and Kanpur University; M.S., Lucknow University; Professor

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NANTWI, KWAKU D.: Ph.D., Wayne State University; M.S., B.S., Eastern Illinois University; Associate Professor

PAN, ZHUO-HAN: Ph.D., State University of New York at Buffalo; B.S., University of Science and Technology; Professor

PEDUZZI-NELSON, JEAN: Ph.D., Wayne State University; B.S., University of Michigan; Associate Professor

SINGH, LALIT: Ph.D., Indian Institute of Science; M.Sc., Gujarat University; B.Sc., D M College of Science; Assistant Professor

STEINLE, JENA: Ph.D., University of Kansas Medical Center; B.S., University of Bridgeport; Professor

SUVAS, SUSMIT: Ph.D., Jawaharlal Nehru University; Associate Professor

THUMMEL, RYAN: Ph.D., University of Kansas Medical Center; B.A., University of Notre Dame; Assistant Professor

VRANISH, JENNIFER: Ph.D., B.S., University of Arizona; Assistant Professor

WALKER, PAUL: Ph.D., Temple University; B.S., Albright College; Professor

- Ophthalmology, Visual and Anatomical Sciences (M.S.) (<https://bulletins.wayne.edu/graduate/school-medicine/programs/ophthalmology-visual-anatomical-sciences/ophthalmology-visual-anatomical-sciences-ms/>)
- Ophthalmology, Visual and Anatomical Sciences (Ph.D.) (<https://bulletins.wayne.edu/graduate/school-medicine/programs/ophthalmology-visual-anatomical-sciences/ophthalmology-visual-anatomical-sciences-phd/>)

## ANA 6050 Biology of the Eye Cr. 3

Introduction to biology of eye structure/function, and to causes and clinical treatments of eye-related disorders and diseases. Offered for undergraduate credit only. Offered Fall.

**Prerequisites:** BIO 3200 with a minimum grade of C- and (BIO 3100 with a minimum grade of C- or CHM 5600 with a minimum grade of C-)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**Equivalent:** BIO 6055, PYC 6050

## ANA 7010 Human Gross Anatomy Cr. 8

Lectures and dissection of limbs, back, thorax, abdomen, head and neck, pelvis and perineum. Written and practical examinations. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

## ANA 7030 Human Microscopic Anatomy Cr. 4

The microscopic structure of tissues and organs. Lectures and laboratory study. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology or Pathology; enrollment is limited to Graduate level students.

## ANA 7055 Biology of the Eye Cr. 3

Integrated introduction to basic biological structure/function of the eye; causes and clinical treatments of eye-related disorders and diseases. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 7055

## ANA 7065 Mechanisms of Ocular Disease I Cr. 2

Lectures and readings on mechanisms and current treatments for diseases of the anterior segment of the eye. Offered Winter.

**Prerequisite:** ANA 7055 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

## ANA 7075 Mechanisms of Ocular Disease II Cr. 2

Lectures and readings on mechanisms and current treatments for diseases of the posterior segment of the eye. Offered Fall.

**Prerequisite:** ANA 7055 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANA 7130 Neuroanatomy Cr. 4**

Lecture and laboratory study of the nervous system. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**ANA 7260 Special Dissection Cr. 2-10**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 20 Credits**

**ANA 7270 Special Projects in Anatomy Cr. 2-10**

Research rotations leading to selection of permanent advisor. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**ANA 7890 Seminar Cr. 1**

Biweekly departmental seminar. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**ANA 7996 Research Cr. 15**

Research under direction of permanent advisor. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 30 Credits**

**ANA 8999 Master's Thesis Research and Direction Cr. 1-8**

Original research leading to M.S. degree under Plan A. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ANA 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ANA 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 3-9**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ANA 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 1-18**

Offered Every Term.

**Prerequisite:** ANA 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 18 Credits**

**ANA 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 0 Credits**