## Academic Programs

### Center for Biomedical Research

### B.S. in Biochemistry: An Interdisciplinary Program

### Premedical Studies

Concentration in Pre-Professional Studies in Medicine, Dentistry, Optometry and Veterinary Medicine

### School of Health Sciences

School of Nursing

Executive M.B.A in Health Care Management, School of Business Administration

Bioengineering, Bioinformatics, School of Engineering and Computer Science

## Courses

### Anatomy and Physiology

- BIO 121: Clinical Anatomy and Physiology
- BIO 205: Human Anatomy
- BIO 207: Human Anatomy Laboratory
- BIO 207: Human Physiology
- BIO 321: Physiology
- BIO 322: Anatomy and Physiology Laboratory
- BIO 381: Gross Human Anatomy
- BIO 401: Advanced Human Physiology

### Biochemistry

- BIO 325: Biochemistry I
- BIO 326: Biochemistry Laboratory
- BIO 407: Cellular Biochemistry
- BIO 425: Biochemistry II
- BCM 453: Biochemistry I
- BCM 454: Biochemistry II
- BCM 457: Biochemistry Laboratory
- BCM 489: Biotechnology Internship
- BCM 490: Biochemistry Research

### Cell and Molecular Biology

- BIO 309: Biology of the Cell
- BIO 310: Biology of the Cell Laboratory
- BIO 439: Molecular Biology
- BIO 440: Molecular Biology Laboratory
- BIO 463: Topics in Cell Biology
- BIO 464: Cell Biology Laboratory

### Endocrinology

- BIO 409: Endocrinology
- EXS 415: Exercise Endocrinology

### Genetics and Bioinformatics

- BIO 341: Genetics
- BIO 342: Genetics Laboratory
- MLS 400: Introduction to Molecular Genetics
- BIO 443: Functional Genomics and Bioinformatics

### Immunology

- BIO 423: Immunology
- MLS 323: Clinical Immunology

### Medical Physics

- PHY 326: Medical Physics
- PHY 445: Medical Instrumentation

### Microbiology

- BIO 307: Introduction to Human Microbiology
- BIO 319: General Microbiology
- MLS 330: Clinical Microbiology
- MLS 331: Clinical Microbiology Laboratory
- BIO 320: General Microbiology Laboratory
- BIO 421: Medical Microbiology
- BIO 441: Microbial Biotechnology

### Neurobiology and Neuroanatomy

- BIO 351: Neurobiology
- BIO 460: Neuroanatomy
- BIO 461: Neuroanatomy Laboratory

### Parasitology and Mycology, and Virology

- BIO 437: Virology
- BIO 465: Medical Parasitology and Mycology
- MLS 335: Clinical Parasitology/Mycology/Virology

### Pharmacology

- HS 331: Pharmacology
- NRS 308: Pharmacology in Nursing

### Pathology, Hematology

- HS 401: Human Pathology
- MLS 316: Medical Hematology
- MLS 317: Hematology Laboratory
- MLS 401: Molecular Pathology

### Pathophysiology

- NRS 227: Pathophysiology

### Related General Biology Courses

- BIO 104: Human Biology
- BIO 305: Histology
- BIO 306: Histology Laboratory
- BIO 323: Development Biology
- BIO 324: Development Biology Laboratory
- BIO 451: Research Forum

### Anthropology

- AN 333: Medical Anthropology

### Toxicology, Occupational Health, Environment

- ENV 386: Principles of Occupational Health
- ENV 484: Environmental Toxicology
- ENV 486: Toxic Substance Control
- RT 301: Introduction to Radiation Safety
- OSH 423: Radiation Safety

### Psychology

- PSY 316: Cognitive Psychology
- PSY 318: Physiological Psychology
- PSY 338: Health Psychology

### Health Sciences

- EXS 105: Cardiovascular Fitness Training
- EXS 304: Exercise Physiology
- EXS 306: Exercise Physiology Laboratory
- EXS 405: Health and Disease
- EXS 406: The Brain and Disease
- EXS 425: Exercise Electrophysiography
- HS 451: Mind-Body Medicine
- RT 315: Seminars in Radiation Oncology
- RT 344: Clinical Radiation Oncology
Eye Research Institute

Affiliated with the Department of Ophthalmology at Beaumont Hospitals and funded by the National Institutes of Health, ERI faculty work on preventing blindness and vision loss and exposing the underlying causes of eye diseases. Studies include developing a treatment for macular degeneration that reduces surgical time and improves outcomes. Other projects focus on corneal transparency, glaucoma, lens transparency and cataracts, diabetic complications, retinal biochemistry, light damage, inherited eye disease and blindness in premature infants.

Center for Biomedical Research

The Center for Biomedical Research provides core facilities and pilot funding for the applied biomedical research efforts of OU’s life scientists.

The center collaborates with public and private organizations in the region and is positioned to play a significant role in the Michigan Life Sciences Corridor and Automation Alley to promote transfer of technology.

Fosters collaborations with investigators at:
- Beaumont Hospitals
- Henry Ford Hospital
- Local biotech companies

Key biomedical research areas include:
- Vision Research
- Chemical Toxicology
- Health & Environmental Chemistry
- Medical Physics and Biological Communication

Programs include:
- Eye diseases, including cataracts, glaucoma and retinopathy
- Breast cancer and gene susceptibility to cancer
- Cardiovascular health and role of hormones in hypertension
- Noninvasive biomedical techniques in the diagnosis of stroke
- Radiation and living systems
- Epilepsy
- Migraine headaches
- Osteoarthritis and cartilage damage
- Stem Cell research on bone regeneration
- Mathematic modeling for understanding electric stimulation and defibrillation
- Chemical toxicology
DISTINGUISHED FACULTY in Biomedical Sciences

Michael Sevilla
Distinguished Professor of Chemistry
President of American Radiation Society

Yang Xia
Professor of Physics
Recently awarded a 5-yr. $2.2M NIH grant

Frank Giblin
Director, Eye Research Institute
NIH-funded for 30 years

Xiangqun Zeng
Associate Professor of Chemistry
NIH $2.1M 5-yr. award, biosensor research