

# Optometry

## Courses

### ***OPTOM 8010 Anatomy, Physiology and Disease Processes I: 5 semester hours***

This course is the first in a two-semester course sequence that will detail the general anatomy of the human body along with the histology (microanatomy), physiology and disease processes of major organ systems. The course content will be presented in a modular format. Areas of discussion will include cardiovascular, respiratory, endocrine, digestive, reproductive, integumentary and peripheral and autonomic nervous systems. The laboratories will emphasize and augment important concepts introduced in the classroom environment.

### ***OPTOM 8020 Basic and Clinical Optics I: 4 semester hours***

Prerequisites: Consent of instructor. The principles of geometrical optics as applied to refracting and reflecting surfaces, thin lenses, thick lenses, and lens systems. The optics of various ophthalmic instruments and techniques will be examined.

### ***OPTOM 8030 Introduction to Optometry: 1 semester hour***

An introduction to the profession of optometry, including a consideration of the characteristics of a profession, the behaviors and attitudes of a professional, the history of optometry, the profession's legal basis, the major optometric organizations and sources and types of information available to optometrists. One hour of lecture per week.

### ***OPTOM 8040 Neuroanatomy: 4 semester hours***

Prerequisites: Consent of instructor. Detailed gross and microscopic anatomy of human central nervous system with a special emphasis on the cranial nerves, nuclei, and the visual system.

### ***OPTOM 8050 Basic and Applied Immunology: 2 semester hours***

This course will address the basic concepts of immunology including innate and adaptive immune responses. Mechanisms of hypersensitivity reactions and applications of immunology to ocular and systemic disease, transplantation, and treatment or prevention of cancer are included. Students must be concurrently enrolled in OPTOM 8010.

### ***OPTOM 8060 Biochemistry: 2 semester hours***

Basic concepts of general and cellular biochemistry. Study of nomenclature, structure, and reactions of organic molecules. Some emphasis on visual system - tears, intraocular fluids, lens, and photochemistry.

### ***OPTOM 8080 Clinical Optometry I: 2 semester hours***

Introduction to ocular assessment including case history and entrance examination procedures and theory.

### ***OPTOM 8090 Case Based Discovery for the Developing Clinician: 1 semester hour***

Students acquire curricular competencies appropriate for the professional year in which they are enrolled via in depth individual and group discovery via case based presentations. The experience will provide students the opportunity to assimilate and recognize the relationships among diverse topics emphasized within the optometric curriculum. Participants work in groups of no more than 10.

### ***OPTOM 8110 Anatomy, Physiology and Disease Processes II: 4 semester hours***

Prerequisites: OPTOM 8010, OPTOM 8060. Continuation of OPTOM 8010 Anatomy, Physiology and Disease Processes I.

### ***OPTOM 8120 Basic and Clinical Optics II: 5 semester hours***

Prerequisite: OPTOM 8020. Radiometry and photometry, polarization, scattering, emmetropia, myopia, hyperopia, astigmatism, models of experimental myopia, accommodation, diffraction, retinal image size, entoptic phenomena, aberrations, lasers and the eye, apertures, and optical instruments.

### ***OPTOM 8160 Anatomy and Physiology of the Eye: 5 semester hours***

Prerequisites: OPTOM 8040, OPTOM 8010 or consent of instructor. Vegetative anatomy and physiology of the eye, optic nerve, orbit, and adnexa will be discussed. This includes discussion of embryology and the dynamics of ocular fluids. Four lecture hours and a two-hour laboratory per week.

### ***OPTOM 8180 Clinical Optometry II: 5 semester hours***

Prerequisites: OPTOM 8080. Continuation of Clinical Optometry I. Patient care instruction including entrance examination procedures, refraction, ophthalmoscopy and biomicroscopy.

### ***OPTOM 8190 Introduction to Clinical Diagnostic Reasoning: 1 semester hour***

Prerequisite: OPTOM 8090. Introduction to clinical diagnostic reasoning by individual and group case-based learning. Scenarios give students an understanding of the relationship between basic and clinical sciences and provide an introduction to established best practices.

### ***OPTOM 8220 Ophthalmic Optics: 4 semester hours***

Prerequisites: OPTOM 8120. Ophthalmic materials, physical characteristics of lenses and frames, paraxial optics of ophthalmic lenses, ophthalmic prisms, lens specifications, special lenses, multifocal lenses, unique designs, aniseikonic lenses, aberration theory and its application to lens design, lenses for low vision, protective eyewear.

### ***OPTOM 8230 Interpersonal Communications: 1 semester hour***

Prerequisites: OPTOM 8030. This course covers the principles of human interpersonal relationships. The enhancement of listening and verbal skills will be provided. Emphasis will be on preparing the student to understand and manage the many human interpersonal relationships necessary in the practice of optometry.

### ***OPTOM 8240 Ocular Motility: 2 semester hours***

Prerequisites: OPTOM 8040 or consent of instructor. The anatomy, physiology, neurology, measurement, characteristic, and control of the intra- and extraocular system.

### ***OPTOM 8250 Monocular Sensory Processes: 4 semester hours***

Prerequisite: OPTOM 8160 or consent of instructor. Monocular sensory processes of vision: phototransduction, visual neurophysiology, spatial and temporal vision, acuity, light adaptation and discrimination, color, motion, objects and attention. Sensory processes are considered from both the psychophysical aspects and neurophysiological bases, including the changes during development, adulthood and aging. Four hours of lecture and two hours of laboratory per week.

### ***OPTOM 8260 General and Ocular Pharmacology: 4 semester hours***

Prerequisites: OPTOM 8110, OPTOM 8160, OPTOM 8080, OPTOM 8180. This course establishes an understanding of both systemic and ocular pharmacology focusing on mechanisms of action, drug interactions within the body, and drug interactions with other medications. Attention is given to clinical cases relevant to optometric practice and a broad overview of general and ocular pharmacology as a whole.

### ***OPTOM 8280 Clinical Optometry III: 4 semester hours***

Prerequisites: OPTOM 8080 and OPTOM 8180. Continuation of clinical optometry. Patient care in the areas of refraction, binocular integration, perimetry, and biomicroscopy.

**OPTOM 8320 Ophthalmic Dispensing: 1 semester hour**

Prerequisites: OPTOM 8220. Clinical experience in verification and dispensing of ophthalmic materials.

**OPTOM 8340 Binocular Vision and Space Perception: 4 semester hours**

Prerequisites: OPTOM 8240, OPTOM 8280 and OPTOM 8250 or consent of instructor. Binocular vision and space perception. Visual direction, theory of correspondence, fusion, rivalry, ocular dominance, and stereopsis. Developmental aspects and neurophysiological mechanisms.

**OPTOM 8370 Foundations of Ocular and Systemic Disease and Management I: 5 semester hours**

Prerequisite: OPTOM 8260. The first in the series of courses that address diseases of the eye, clinical diagnoses, and optometric and medical management of ocular and systemic disease. The laboratories emphasize diagnostic techniques and treatment skills, preparation for the initial clinic privileging examination and augment important concepts introduced in the classroom environment.

**OPTOM 8380 Clinical Optometry IV: 2 semester hours**

Prerequisites: OPTOM 8280. Continuation of Clinical Optometry III. Diagnosis, prognosis and management of visual problems. Emphasis on conducting comprehensive eye exams in preparation for the initial clinical privileging examination.

**OPTOM 8390 Specialty Clinic Laboratory: 1 semester hour**

Prerequisite: OPTOM 8280. Students acquire and practice skills for pediatric, binocular vision, low vision, and contact lens examinations. The course format is one 2-hour laboratory per week.

**OPTOM 8391 Clinical Topics in Contact Lenses: 1 semester hour**

Prerequisite: OPTOM 8280. This is the first in a series of 3 courses addressing contact lenses. The focus is on contact lens care and evaluation. The course format is one 50-minute lecture per week.

**OPTOM 8392 Clinical Topics in Binocular Vision and Pediatric Optometry: 1 semester hour**

Prerequisite: OPTOM 8240 and OPTOM 8280. This course presents clinical diagnostic and management skills for both pediatric patients and those with binocular vision anomalies. The course format is lecture.

**OPTOM 8393 Clinical Topics in Low Vision: 1 semester hour**

Prerequisite: OPTOM 8280. This course presents clinical diagnostic and management skills for patients with low vision. the course format is one 50-minute lecture per week.

**OPTOM 8400 Directed Readings: 1-3 semester hours**

Prerequisite: Consent of Instructor. Credit is given for independent literature review of a specific topic in any area of basic or clinical vision science guided by a full time faculty member with appropriate interests. Credit is awarded upon approval of a written paper regarding the selected topic. This elective may be repeated up to a total of 3 credit hours.

**OPTOM 8410 Directed Research: 1-3 semester hours**

Prerequisite: Consent of Instructor. Credit is given for independent research. Projects may be laboratory, library, or clinically based research in any area of vision science. Projects will be supervised by one or more full time faculty members. This elective may be repeated up to a total of 6 credit hours.

**OPTOM 8450 Introduction to Primary Care Clinic: 4 semester hours**

Prerequisites: OPTOM 8230, OPTOM 8320, OPTOM 8340, OPTOM 8370, OPTOM 8380, OPTOM 8390, OPTOM 8391, OPTOM 8392, OPTOM 8393, OPTOM 8560, and successful completion of the Clinical Proficiency Examination. The first in a series of adult primary care courses. Students perform comprehensive examinations, make diagnoses, and develop management plans with patient education under supervision of a faculty attending. Students participate in accompanying clinic seminar discussion groups.

**OPTOM 8460 Foundations of Ocular and Systemic Disease and Management III: 3 semester hours**

Prerequisites: OPTOM 8370. The third course in the foundation series that addresses ocular and systemic diseases and their management. The laboratories will emphasize and augment important concepts introduced in the classroom environment.

**OPTOM 8480 Pharmaceutical Management in Patient Care: 2 semester hours**

Prerequisites: OPTOM 8260; OPTOM 8370; OPTOM 8460. This course will discuss the clinician's responsibility in the treatment and management of ocular conditions and systemic complications of pharmaceutical use. Principles of ocular pharmacology in regards to specific management and treatment of ocular disease, trauma, and surgery by systemic, local, and topical therapy. In addition, simulated case studies are used to illustrate the basic and subtle clinical aspects of treating patients using pharmaceutical agents.

**OPTOM 8500 Primary Care Clinic I: 6 semester hours**

Prerequisites: OPTOM 8450. Continuation of Introduction to Primary Care Clinic. Weekly clinic seminar will supplement clinical experience with discussion of medical billing and coding, pharmacology, and patient case discussion and review.

**OPTOM 8520 Contact Lenses I: 3 semester hours**

Prerequisites: OPTOM 8380 and OPTOM 8391. Historical development of the contact lens and its use. Basic lens terminology, specifications, physiochemical characteristics, optics, fabrication, and verification. Preliminary patient evaluation, indications and contraindications for contact lenses. Basic fitting philosophies for all lens types. Lens care and patient education. Patient and practice management considerations.

**OPTOM 8540 Diagnosis and Management of Binocular Vision Anomalies: 4 semester hours**

Prerequisites: OPTOM 8340, OPTOM 8380 and OPTOM 8392 or consent of instructor. The etiology, epidemiology, symptoms, signs, and course sequelae of the obstacles to binocular vision-sensory, integrative, and motor. The detection, diagnosis, prognosis, and orthoptic treatment of such anomalies. Clinical care of aniseikonas.

**OPTOM 8550 Low Vision: 2 semester hours**

Prerequisite: OPTOM 8380 and OPTOM 8393. The etiology, epidemiology, symptoms, signs, course, and sequelae of low vision problems. Methods of testing, prognosis, selection of therapy, design of environmental and optical aids, problems of rehabilitation. Agencies, laws, public and social assistance for the partially sighted and blind. The course format is lecture and 1 two-hour laboratory per week.

**OPTOM 8560 Epidemiology and Public Health: 3 semester hours**

The essentials of epidemiological study procedures and a discussion of the epidemiology of vision disorders are discussed. The course reviews descriptive statistics, probability sampling, correlation, and prediction. The public health component includes a review of local, state, and federal organizations involved in health care, comprehensive health planning, new trends in health care delivery, and the assessment of the quality of health care delivery.

**OPTOM 8570 Advanced Topics in Ocular and Systemic Disease and Management: 5 semester hours**

Prerequisites: OPTOM 8370. The third semester of a comprehensive, systems based course sequence. Advanced topics in diagnoses as well as optometric and medical management of ocular and systemic disease will be discussed.

**OPTOM 8600 Primary Care Clinic II: 6 semester hours**

Prerequisites: OPTOM 8500, OPTOM 8520, OPTOM 8540, OPTOM 8550, OPTOM 8570, and OPTOM 8650. The final course in the adult primary care sequence. Students examine and care for patients under supervision of a faculty attending. Students are expected to function nearly independently in final preparation for the Externship Program.

**OPTOM 8615 Applied Basic Science Review: 1 semester hour**

The course focuses on a review of important basic science concepts presented during the first two and one half years of the program curriculum. Technology will be used to gauge student knowledge and adjust topics of curricular review. This course is given during the first half of the semester for two hours each week.

**OPTOM 8620 Contact Lenses II: 2 semester hours**

Prerequisites: OPTOM 8520. Advanced contact lens fitting, theories, and clinical methods for astigmatic, presbyopic, keratoconic, and aphakic designs. Special considerations include the use of corneal topography, orthokeratology, disposable lenses, lenses for extended wear and lenses for color deficiencies. The course format is one lecture per week.

**OPTOM 8630 Practice Management I: 3 semester hours**

Prerequisites: OPTOM 8030 and OPTOM 8230. The development and management of an optometric practice from a patient and community service point of view - office design, office routine, patient care administration, personnel management, recall systems and the establishment, development and management of an optometric practice from a business point of view - legal developments, governmental regulations, legislation and the legislative process, malpractice, professional ethics, taxes, fee structures, insurance and accounting methods.

**OPTOM 8640 Pediatric Optometry and Visual Perception: 2 semester hours**

Prerequisites: OPTOM 8380 and OPTOM 8540. Special examination and management considerations of the pediatric patient. Psychological, physiological, social, and demographic aspects of early visual development. Discussion of the optometric considerations of children with learning and reading disabilities. The course format is two lecture/discussions per week.

**OPTOM 8645 Neurologic Disorders of the Eye and Visual System: 2 semester hours**

Prerequisites: OPTOM 8570. Diagnosis, management and treatment of selected neurologic disorders of the eye and visual system. Emphasis is on diagnostic imaging of the visual system, diagnosis of central and peripheral disorders of eye movements, space occupying lesions, acquired brain injury, and optic nerve disease.

**OPTOM 8650 Geriatric Optometry: 2 semester hours**

Prerequisite: OPTOM 8380. Special examination and management considerations of the geriatric patient will be discussed. Psychological, physiological, social, and demographic aspects of aging, as well as ocular changes associated with the aging process will be taught.

**OPTOM 8660 Contact Lens Specialty Clinic: 1 semester hour**

Prerequisites: OPTOM 8391. The clinical examination and care of patients in the optometric specialty area of contact lenses.

**OPTOM 8670 Comprehensive Case Review and analysis: 1 semester hour**

Prerequisites: Enrollment in OPTOM 8500 or OPTOM 8600. Discussion of the diagnosis and management of common clinic patient encounters via Socratic teaching techniques. Interns are encouraged to present actual cases which have been particularly challenging for them. The course format is a weekly seminar.

**OPTOM 8680 Ophthalmic Lasers and Advanced Procedures: 2 semester hours**

Prerequisites: OPTOM 8570. This course will review the principles and applications of lasers for the anterior segment. Topics will include the principles, physics, laser tissue interactions and safety concerns for ophthalmic lasers. The indications, contraindications and potential complications of lasers used for open angle glaucoma, closed angle glaucoma and posterior capsulotomy will be reviewed. In addition, the course will review epiluminescence microscopy, minor surgical procedures, suture techniques, office emergencies including anaphylaxis, chalazion management and radiofrequency surgery. An overview of the anatomy of eyelids, post-operative wound care, complications of surgical procedures, surgical instruments, asepsis and OSHA will be provided. The medicolegal aspects of anterior segment procedures will be discussed. Co-Management of patients who have corneal refractive surgery will also be covered.

**OPTOM 8690 Pediatric/Binocular Vision Specialty Clinic: 1 semester hour**

Prerequisites: OPTOM 8392. The clinical examination and care of patients in the optometric specialty areas of binocular vision and pediatric vision.

**OPTOM 8700 UM-St. Louis Pediatric/Binocular Vision Patient Care: 3 semester hours**

Prerequisites: Successful completion of all first, second and third year coursework. Comprehensive clinical care of patients in pediatric/binocular vision clinic at the University of Missouri-St. Louis Center for Eyecare. This course fulfills one of the clinic courses required for graduation. This course must be taken in conjunction with OPTOM 8710 and OPTOM 8720.

**OPTOM 8710 UM-St. Louis Contact Lens Patient Care: 3 semester hours**

Prerequisites: Successful completion of all first, second and third year coursework required Comprehensive clinical care in the contact lens clinic at the University of Missouri-St. Louis Center for Eyecare. This course fulfills one of the clinic courses required for graduation. This course must be taken in conjunction with OPTOM 8700 and OPTOM 8720.

**OPTOM 8720 UMSL Eye Health Management Patient Care: 1 semester hour**

Prerequisites: Successful completion of all first, second, and third year course work. Comprehensive clinical care in the eye health management clinic with ophthalmologists at the University of Missouri-St. Louis University Eye Center. This course fulfills one of the clinic courses required for graduation. This course must be taken in conjunction with OPTOM 8700 and OPTOM 8710.

**OPTOM 8770 External Rotation in Clinical Care III: 7 semester hours**

Prerequisites: Successful completion of all first, second, and third year coursework. One of three external rotations that includes comprehensive clinical care of patients. The clinical care can occur at St. Louis area community health centers, affiliated University clinics, private optometry practices, or MD/OD practices. Patient encounters will be reflective of the clinical location and will include primary care optometry for all patient ages and demographics. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8780 External Rotation at VA or Hospital Based: 7 semester hours**

Prerequisites: Successful completion of all first, second and third year coursework. Comprehensive clinical care of primary care patients at external sites approved by the School of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8790 External Rotation in Ocular Disease Patient Care: 7 semester hours**

Prerequisites: Successful completion of all first, second and third year coursework. Comprehensive clinical care of patients with ocular disease at external sites approved by the School of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8810 External Rotation in Contact Lens Patient Care: 7 semester hours**

Prerequisites: Successful completion of all first, second and third year coursework. Comprehensive clinical care of contact lens patients at an external site approved by the School of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8812 External Rotation in Geriatric Patient Care: 7 semester hours**

Prerequisites: Successful completion of all second and third year coursework. Comprehensive clinical care of Geriatric Patients at an external site approved by the College of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8813 External Rotation in Ophthalmic Sports Vision: 7 semester hours**

Prerequisites: Successful completion of all second and third year coursework. Comprehensive clinical care of Sports Vision Patients at an external site approved by the College of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8814 External Rotation in Clinical Care I: 7 semester hours**

Prerequisites: Successful completion of all second and third year coursework. One of three external rotations that includes comprehensive clinical care of patients. The clinical care can occur at St. Louis area community health centers, affiliated University clinics, private optometry practices, or MD/OD practices. Patient encounters will be reflective of the clinical location and will include primary care optometry for all patient ages and demographics. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8817 External Rotation in Rehabilitative Patient Care: 7 semester hours**

Prerequisites: Successful completion of all second and third year coursework. Comprehensive clinical care in Rehabilitative Patient Care at an external site approved by the College of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8830 External Rotation in Clinical Care II: 7 semester hours**

Prerequisites: Successful completion of all first, second, and third year coursework. One of three external rotations that includes comprehensive clinical care of patients. The clinical care can occur at St. Louis area community health centers, affiliated University clinics, private optometry practices, or MD/OD practices. Patient encounters will be reflective of the clinical location and will include primary care optometry for all patient ages and demographics. This course fulfills one of the clinic courses required for graduation.

**OPTOM 8870 Practice Management II: 2 semester hours**

Prerequisites: Successful completion of all first-, second- and third-year coursework. Further in-depth discussion in practice management.

**OPTOM 8880 Practice Management III: 1 semester hour**

Prerequisites: Successful completion of all first-, second- and third-year coursework. Presentation and discussion of interesting clinical patients. Additional clinical testing techniques and concepts. Further discussion of patient data analysis-the process of determining diagnosis, prognosis, and therapy. Further discussions in the optometric specialties.