Course Descriptions*

The following 8000 level courses are taken in the Doctor of Optometry (O.D.) program. The numbers in parenthesis indicate the credit hours.

8010 Anatomy, Physiology and Disease Processes I (5)
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. 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.

8020 Geometric Optics (4)
Prerequisite: Consent of instructor. The principles of geometric 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.

8030 Introduction to Optometry (1)
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.

8040 Neuroanatomy (4)
Prerequisite: Consent of instructor. Detailed gross and microscopic anatomy of the human central nervous system with a special emphasis on the cranial nerves, nuclei, and the visual system.

8060 Biochemistry (3)
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.

8090 Case Based Discovery for the Developing Clinician (1)
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. Course may be repeated for credit.

8110 Anatomy, Physiology and Disease Processes II (5)
Prerequisite: Opt 8010 and 8060. Continuation of Human Anatomy and Physiology and Disease Processes I.

8120 Ocular Optics (4)
Prerequisite: Opt 8020. The eye as an image forming mechanism, the schematic eyes, the optical role of the pupil, the retinal image and its evaluation. Nature, classification, and etiology of ametropia. Experimental models of refractive errors. Entoptic phenomena. Mechanism and optical aspects of accommodation.

8140 Physical Optics and Photometry (3)
Prerequisite: Optometry 8020 or consent of instructor. Basic photometric concepts, measurements of light levels, applications in ergonomics, visual and photographic optics. Physical optics including diffraction, interference, polarization, birefringence, and lasers.

8160 Anatomy and Physiology of the Eye (5)
Prerequisite: Opt 8010, Opt 8040 and Opt 8060 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.

8180 Clinical Optometry I (5)
Selected tests for ocular assessment including case history, visual acuity, ophthalmoscopy, refraction, and binocular integration. The course format is two 75-minute lectures and two 2-hour laboratories.

8220 Ophthalmic Optics (4)
Prerequisite: Opt 8140, and Opt 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, selecting and dispensing eyewear, management of a dispensary.

8230 Interpersonal Communications (2)
Prerequisite: Opt 8030. Principles of human interpersonal relationships. The enhancement of listening and verbal skills will be provided. Emphasis will be preparing the student to understand and manage the many human interpersonal relationships necessary in the practice of optometry. Two hours of lecture per week.

8240 Ocular Motility (3)
Prerequisite: Opt 8040 or consent of instructor. The anatomy, physiology, neurology, measurement, characteristics, and control of the intra and extraocular system.
8250 Monocular Sensory Processes (5)
Prerequisite: Opt 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.

8260 Foundations of Ocular and Systemic Disease and Management I (4)
Prerequisite: Opt 8110. The first of a comprehensive, three semester course sequence. Topics will be discussed in a modular, system based approach. The course introduces students to disease and the organ systems they affect, clinical diagnoses, pharmacology on specified organ systems and optometric and medical management of ocular and systemic disease.

8280 Clinical Optometry II (5)
Prerequisite: Opt 8180. Continuation of clinical optometry. Patient care in the areas of refraction, binocular integration, perimetry, and bimicroscopy.

8320 Ophthalmic Dispensing (1)
Prerequisite: Opt 8220. Clinical experience in verification and dispensing of ophthalmic materials.

8340 Binocular Vision and Space Perception (4)
Prerequisite: Opt 8240, Opt 8250 and Opt 8280 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.

8350 Epidemiology (2)
A review of descriptive statistics, probability sampling, correlation, and prediction. The essentials of epidemiological study procedures and a discussion of the epidemiology of vision disorders.

8370 Foundations of Ocular and Systemic Disease and Management II (7)
Prerequisite: Opt 8260. A continuation of a comprehensive, systems based course sequence that introduces students to disease processes and the organ systems they affect, clinical diagnoses, pharmacology on specified organ systems and optometric and medical management of ocular and systemic disease. The laboratories will emphasize and augment important concepts introduced in the classroom environment.

8380 Clinical Optometry III (2)
Prerequisite: Opt 8280. Correlation and analysis of optometric data. Emphasis on diagnosis, prognosis, and therapy of visual problems. The course format is one 50-minute lecture and one 2-hour laboratory per week.

8390 Specialty Clinic Laboratory (1)
Prerequisite: Opt 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.

8391 Clinical Topics in Contact Lenses (1)
Prerequisite: Opt 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.

8392 Clinical Topics in Binocular Vision and Pediatric Optometry (1)
Prerequisite: Opt 8280. This course presents clinical diagnostic and management skills for both pediatric patients and those with binocular vision anomalies. The course format is one 50-minute lecture per week.

8393 Clinical Topics in Low Vision (1)
Prerequisite: Opt 8280. This course presents clinical diagnostic and management skills for patients with low vision. The course format is one 50-minute lecture per week.

8400 Directed Readings (1-3)
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.

8410 Directed Research (1-3)
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.

8440 Clinical Applications of Current Topics in Visual Science (2)
(Elective) Prerequisite: Consent of instructor. A seminar on the use of new discoveries in visual science in clinical optometry. Students will participate in selecting the topics, which will change from year to year, with the guidance of the instructor. The course will also include laboratory demonstrations of seminar topics.

8470 Case Studies in Ocular Disease (1)
Prerequisite: Opt 8370 and Opt 8570. This course features discussion of current clinical eye care topics, with attention to ocular disease diagnosis and management. Advanced diagnostic techniques, pathophysiological mechanisms of disease, and current clinic patients will also be emphasized.
8500 Primary Care Clinic I (6)
Prerequisite: Opt 8380 and successful completion of all first and second year course work. The clinical examination and care of general clinic patients, along with the fitting and dispensing of lenses and frames.

8520 Contact Lenses I (3)

8540 Binocular Vision Anomalies (4)
Prerequisite: Opt 8310 and Opt 8340 or consent of instructor. The etiology, epidemiology, symptoms, signs, and course sequela of the obstacles to binocular vision - sensory, integrative, and motor. The detection, diagnosis, prognosis, and orthoptic treatment of such anomalies. Clinical care of aniseikoniass.

8550 Low Vision (2)
Prerequisite: Opt 8393. The etiology, epidemiology, symptoms, signs, and course sequela 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. Course format is 1-hour lecture and 1 two-hour laboratory per week.

8560 Public Health (2)
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. The relationship of vision care to these topics is emphasized.

8570 Advanced Topics in Ocular and systemic disease and Management (6)
Prerequisite: Opt 8260 and 8370. The third semester of a comprehensive, systems based course sequence. Advanced topics in diagnosis as well as optometric and medical management of ocular and systemic disease will be discussed. The laboratories will emphasize and augment important concepts introduced in the classroom environment.

8600 Primary Care Clinic II (6)
Prerequisite: Opt 8500 and successful completion of all Fall semester third year course work. Continuation of Primary Care Clinic I.

8610 Environmental Vision (2)
This course considers the relationship of the eye and vision to all aspects of one's environment including home, work, recreation, and transportation. Emphasis will be placed on protecting the eye from injury and maximizing vision performance.

8620 Contact Lenses II (2)
Prerequisite: Opt 8391 and Opt 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 contact lens practice management. The course format is 1 lecture per week.

8630 Practice Management III (3)
Prerequisite: Opt 8030 and Opt 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, and recall systems. The establishment, development, and management of an optometric practice from a business point of view. Legal developments, governmental relationships, legislation and the legislative process, malpractice, professional ethics, taxes, fee structures, insurance, and accounting methods.

8640 Pediatric Optometry (2)
Prerequisite: Opt 8380 and Opt 8392. 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 2 lecture/discussions per week.

8650 Geriatric Optometry (2)
(Same as Gerontology 6458.) 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.

8660 Contact Lens Specialty Clinic (1)
Prerequisite: Opt 8391 and successful completion of all Fall semester third year course work. The clinical examination and care of patients in the optometric specialty area of contact lenses.

8670 Comprehensive Case Review and Analysis (1)
Prerequisite: Enrollment in Opt 8500 or Opt 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.
8680 Ophthalmic Lasers (1)
Principles and applications of lasers for ophthalmic use. Emphasis will be placed on demonstration where possible. Topics will include the principles, physics and safety concerns of ophthalmic lasers. Lasers used in retinal imaging, and in the care of glaucoma, cataract, refractive conditions, and cosmetic conditions will be discussed and demonstrated. Comanagement of patients requiring ophthalmic laser treatment will also be covered.

8690 Pediatric/Binocular Vision Specialty Clinic (1)
Prerequisite: Opt 8540 and successful completion of all Fall semester third year course work. The clinical examination and care of patients in the optometric specialty areas of binocular vision and pediatric vision.

8700 UM-St. Louis Pediatric/Binocular Vision Patient Care (3)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of patients in pediatric/binocular vision clinic 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 Opt 8710 and Opt 8720.

8710 UM-St. Louis Contact Lens Patient Care (3)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care in the contact lens clinic 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 Opt 8700 and Opt 8720.

8720 UMSL Eye Health Management Patient Care (1)
Prerequisite: 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 Opt 8700 and Opt 8710.

8730 Community Service Patient Care Rotation A (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of patients at St. Louis area community health centers. This course fulfills one of the clinic courses required for graduation.

8750 Community Service Patient Care Rotation B (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of patients at St. Louis area community health centers. This course fulfills one of the clinic courses required for graduation.

8760 Harvester Eye Center Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of patients at the Harvester Eye Center. This course fulfills one of the clinic courses required for graduation.

8770 Community Service Patient Care Rotation C (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of patients at St. Louis area community health centers. This course fulfills one of the clinic courses required for graduation.

8780 External Rotation in Institutional Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of primary care patients at external sites approved by the College of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

8790 External Rotation in Ocular Disease Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of patients with ocular disease at external sites approved by the College of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

8800 External Rotation in Pediatric/Binocular Vision Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of pediatric/binocular 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.

8810 External Rotation in Contact Lens Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year course work. Comprehensive clinical care of contact lens 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.

8811 External Rotation in Ophthalmic Surgical Patient Care (7)
Prerequisite: Successful completion of all second & third year coursework. Comprehensive clinical care of Ophthalmic Surgical 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.

8812 External Rotation in Geriatric Patient Care (7)
Prerequisite: 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.
8813 External Rotation in Ophthalmic Sports Vision (7)
Prerequisite: 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.

8814 External Rotation in Primary Care (7)
Prerequisite: Successful completion of all second and third year coursework. Comprehensive clinical care of Primary Care 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.

8815 External Rotation in Pathology and Treatment (7)
Prerequisite: Successful completion of all second and third year coursework. Comprehensive clinical care in pathology and treatment of 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.

8816 External Rotation in Ophthalmic Laser Treatment (7)
Prerequisite: Successful completion of all second and third year coursework. Comprehensive clinical care in ophthalmic laser treatment of 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.

8817 External Rotation in Rehabilitative Patient Care (7)
Prerequisite: 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.

8820 External Rotation in Low Vision Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year coursework. Comprehensive clinical care of low 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.

8830 External Rotation in General Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year coursework. Comprehensive clinical care of a general population of optometric patients at external sites approved by the College of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

8840 External Supplementary Rotation in General Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year coursework. Comprehensive clinical care of general population of optometric patients at an external site approved by the College of Optometry's Externship Council.

8850 Supplementary Rotation in General Patient Care (7)
Prerequisite: Successful completion of all first, second, and third year coursework. Comprehensive clinical care of general population of optometric patients at the UM-St. Louis University Eye Center, UM-St. Louis Optometric Center, or the UM-St. Louis East St. Louis Eye Center.

8870 Practice Management IV (2)
Prerequisite: Successful completion of all first, second, and third year coursework. Further in-depth discussion in practice management.

8880 Clinic Seminar (1)
Prerequisite: 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.

8910 Topics in Geriatric Optometry (3)
Prerequisite: Opt 8910. This course will address concerns and options in providing optometric care to a geriatric population. New techniques, research, and public policy changes will be discussed to assist students in assembling a global perspective on delivering health care to a specific population.

8970 (591) Geriatric Patient Care Delivery (3-6)
Prerequisite: Consent of Geriatric Residency Instructors. Direct optometric patient care to a population that is largely geriatric. Emphasis will be on integrating specialty care available for these patients to provide comprehensive vision care. Two hours of direct patient care per week are required per hour of credit. In addition, the student will attend weekly supervisory meetings. May be repeated with consent of instructor for a total of 18 credits. Patient care will become more independent of direct supervision and the type of patients seen will be more varied with each repeat.

*If a student desires to waive a prerequisite for a given course, this request must be approved by both the instructor of this course and the Student Committee.