College of Optometry

General Information

The UMSL College of Optometry enrolled its first class in 1980, graduating 32 students in May 1984. The College is located on the South Campus complex of the University of Missouri-St Louis at One University Blvd. A five-story building houses the College's classrooms, laboratories, research facilities, and administrative offices. The Patient Care Center (the Center for Eye Care campus facility), located on the South Campus, is open to the public, as well as to the faculty, staff, and students of the University. The Center serves to provide patients with the highest quality eye and vision care. The second floor of the Patient Care Center also houses laboratories, classrooms, and study spaces.

The College of Optometry is a member of the Association of Schools and Colleges of Optometry (ASCO) and is accredited by the Accreditation Council on Optometry Education (ACOE).

The Doctor of Optometry (O.D.) Degree

A student who satisfactorily completes all four years of the professional curriculum will be eligible to receive the Doctor of Optometry degree. The training and clinical experience optometry students receive at UMSL qualifies graduates to practice optometry in any state in the nation.

Center for Eye Care

The Center for Eye Care provides a patient care environment for upper level optometry students and postdoctoral residents. The Center for Eye Care includes three locations: the Patient Care Center on the UMSL South Campus, the Lindell Eye Center in the Central West End of the city of St. Louis, and the East St. Louis Eye Center on the campus of Southern Illinois University Edwardsville East St. Louis Campus. These and other affiliated health centers in the St. Louis area provide an instructional setting where student interns are exposed to a wide variety of patients under the direct supervision of College of Optometry faculty. Equally important is that these Centers provide exemplary, comprehensive and state-of-the-art eye and vision care to their patients.

The Centers provide a full range of optometric services including adult primary eye care, contact lens, pediatrics, binocular vision, low vision, and eye health management. Specialized testing of color vision and electrophysiology are also available.

Situated in Missouri's largest metropolitan area, the College of Optometry enjoys the region's strong community and professional support. The urban setting offers many opportunities for outreach programs, expanding the scope of optometric education and making possible a highly diverse program of clinical training. Another asset of the College is its proximity to the national headquarters of the American Optometric Association, located just a few miles from campus.

The curriculum leading to the Doctor of Optometry degree is a four-year, full-time program of study. The first year of the professional program emphasizes optical principles, the biomedical sciences, optics of the visual system, clinical examination techniques, and an introduction to clinical reasoning. The second year focuses on vision science, pharmacology, ocular disease, clinical care topics, public health, and continued instruction in clinical examination techniques. The third year emphasizes patient care, advanced topics in ocular disease management, practice management, and specialty areas within optometry, such as contact lenses, pediatric care, geriatric vision care, binocular vision, vision therapy, neurology, and low vision rehabilitation. The second and third years also include course work and clinical instruction in advanced clinical procedures and ophthalmic lasers. The fourth year includes rotations through the externship program, giving the student added experience in the management of eye diseases, as well as valuable experience in other optometric clinical specialties.

Fourth-Year Externship Program

In addition to the patient care experiences available through the Patient Care Center, Lindell Eye Center, the East St. Louis Center, and its affiliated clinics, the College of Optometry also has a diverse Externship Program. Students must receive approval from the faculty and Director of the 4th Year Clinical Experience for assignments to each Externship site. This program allows fourth-year students to spend a portion of their final year of training in a variety of patient care environments (i.e., military bases, Veterans Administration Hospitals, Indian Health Services Hospitals, various specialty practices and private practices).

These eight (8) week externships are selected and scheduled with consideration given to the individual student's interest, needs and future practice intentions. In this program, students leave the academic environment and begin working with selected eye care professionals while continuing to be monitored by the faculty through bi-weekly reports of patient encounters, therapies, and activities. The externship rotations are designed to give students exposure in the following areas:

- Pediatric/Binocular Vision Patient Care
- Contact Lens Patient Care
- Low Vision Patient Care
- General (Primary Optometric) Patient Care
- Refractive Management Patient Care
- Eye Health Management Patient Care
- Geriatric Patient Care
- Optometric Rehabilitation Patient Care

Research

While the Patient Care Center is primarily a patient care training facility, various members of the faculty are nationally and internally recognized for conducting patient care related research. Research in the areas of electrodiagnostic testing, contact lens design, materials and care regimens, orthokeratology, binocular visual anomalies, and treatment of ocular diseases is being investigated in association with the patient care activities of the Centers.

The College of Optometry is part of a university with a land-grant, research-oriented mission. The University is the only public academic institution in the state that has a primary research mission. Research compliments teaching because faculty active in the discovery of new knowledge provide students with the insight to understand and use this knowledge, and they also provide firsthand understanding of how discoveries are made.

Student Organizations & Activities

All optometry students enrolled in the University of Missouri-St. Louis College of Optometry are eligible for membership in the various student optometric associations, including The Missouri Optometric Student Association (MOSA) and The American Optometric Student Association (AOSA). Through these organizations, and many others, students become involved in local and national optometric activities. The organizations provide an environment for the cultivation of professional leadership

skills. Student organization members have organized and participated in a variety of community service activities, including community health screenings and providing vision care to residents of nursing homes, convalescent hospitals, and mental institutions. Furthermore, optometry students have formed local chapters of Student Volunteer Optometric Services to Humanity (SVOSH), an international organization of optometrists providing free vision care to people in impoverished nations, and the National Optometric Student Association (NOSA), which strives to recruit minority students into optometry and encourages retention of minority students.

In addition to the many activities through the College of Optometry, optometry students can take advantage of all the activities provided by the university to the entire university community. These include intramural sports, movies and cultural activities, a new and fully equipped fitness center, and access to many social and cultural opportunities in St. Louis at reduced cost.

Pre-Optometry Programs

The University of Missouri-St. Louis offers a four-year program of study leading to the doctor of optometry degree; this professional degree is administered by the College of Optometry. It is one of only 23 accredited programs in the United States and the only one in the state of Missouri. This program, as a result, makes UMSL an ideal institution for pre-optometry education. Various programs are available for pre-optometry as noted below.

Students may pursue a traditional 4 + 4 program, which is a bachelor's degree followed by the four-year graduate optometry program. In this case, students may pursue any bachelor's degree, as long as the pre-optometry requirements are met in biology, chemistry, mathematics, physics, psychology, humanities, and English.

Alternatively, the Department of Arts and Sciences, sponsors a 3+4 Programs for the UMSL College of Optometry, for which a student may be admitted to the College of Optometry after completing three years (90 semester hours) of study in the BS Biology degree and successful completion of the Optometry Admission Test (OAT). For more information, please contact the Pre-Health Advisor in the Marcus Allen Advising Center in the College of Arts and Sciences via email: artscience@umsl.edu or by phone: 314-516-5501 for specific requirements.

The Pierre Laclede Honors College and the College of Optometry also offer the Scholars Program, which allows a student to complete both the undergraduate and doctor of optometry degrees in seven years. To qualify for this program, a student must be a senior in high school; score a minimum composite of 27 on the ACT; and be accepted to the UMSL Pierre Laclede Honors College program. For more information about the Scholars Program, contact the Pierre Laclede Honors College, (314) 516-7769.

For the programs described above (Scholars or 3+4), the undergraduate degree is granted when the student satisfactorily completes the first year of the professional program and has met all of the conditions for the specific undergraduate degree for which the student has applied.

In exceptional circumstances, students with exemplary qualifications may be admitted to the optometry program without a degree.

Admission Requirements

- Semester:
  - English - 2
  - General Biology (including laboratory)[1] – 2
  - Microbiology (including laboratory) - 1
  - Physics (including laboratory) – 2

Algebra or calculus based accepted

- Chemistry[2]
- General (including laboratory) - 2
- Organic (including laboratory) - 1
- Calculus - 1
- Statistics - 1
- Psychology - 1
- Liberal Arts/Humanities - 2

- Quarter:
  - English - 3
  - General Biology (including laboratory) – 3
  - Microbiology (including laboratory) - 1
  - Physics (including laboratory) – 3

Algebra or calculus based accepted

- Chemistry[2]
- General (including laboratory) - 3
- Organic (including laboratory) - 2
- Calculus - 1
- Statistics - 1
- Psychology – 1
- Liberal Arts – 2

[1]One semester of Anatomy or Physiology is strongly recommended.

[2]One semester of Biochemistry, Cell Biology or Human/Comparative Physiology is strongly recommended.

The College of Optometry uses a rolling admissions process. All courses used to satisfy the admission requirements must have been taken at an institution fully accredited by one of the Department of Education regional accreditation bodies. Specific prerequisite courses must be taken for a letter grade; they cannot be taken as an audit or on a pass/fail or satisfactory/unsatisfactory basis. An exception is that pass/fail or satisfactory/unsatisfactory grades will be accepted for course work that was taken during the pandemic (spring 2020 through spring 2021). Applicants must have completed 90 semester or 135 quarter hours (the equivalent of three years of college education) before the start of classes. The applicant cannot apply more than 60 semester hours or 90 quarter hours which were earned at a two-year institution toward the credit-hour requirement. Applicants holding a bachelor's degree will be given preference over applicants with similar academic credentials who do not have a degree. Applicants to the college come from a variety of undergraduate backgrounds, such as biological sciences, chemistry, psychology, education, and business.

Advanced Placement (AP), International Baccalaureate (IB), and/or College-Level Examination Program (CLEP) Credit (Effective June 29, 2023)

Advanced Placement (AP), International Baccalaureate (IB), and/or College-Level Examination Program (CLEP) Credit is acceptable if the credits were accepted by the undergraduate institution and appear on the undergraduate transcript. We will accept prerequisite courses taken online provided they were offered by an accredited college or university. In-person laboratories are strongly preferred.

Admission Test

The Optometry Admission Test (OAT) is the preferred qualifying exam that determines an applicant's eligibility for an interview. Beginning with applicants applying July 1, 2019 the college will also consider test scores from the Dental Admissions Test (DAT), Medical College Admissions Test (MCAT), the Pharmacy College Admissions test (PCAT) and the Graduate Records Examination (GRE). Please contact the College of Optometry's office of admissions for more information regarding the acceptance of these exams. Official test scores from qualifying exams are valid for up to three years from the testing date. Typically, students should plan to take the exam during the summer between the third and fourth year of their undergraduate program.

For OAT information, contact:

https://oat.ada.org/

(800) 232-2159

Application Procedures

The Optometry Centralized Application Service (OptomCAS) application opens on July 1 for the class entering the following year. An applicant's file will be considered complete and ready for consideration by the Admission Committee when the following material has been received:

- *OptomCAS application submitted and verified
  - Three letters of recommendations including one from a practicing optometrist processed through OptomCAS
  - All transcripts/grades reviewed and verified
- *OAT scores (The College also accepts the MCAT, PACT, DAT, and GRE scores)
- Supplemental application submitted through UMSL including a $50.00 non-refundable application fee

*Items with asterisk are processed by OptomCAS

Official transcripts must be submitted to OptomCAS and must be mailed or electronically sent through a secure transcript processing service such as the National Clearinghouse, etc. Transcripts must be sent from every college attended regardless of whether courses appear on your current institution transcript.

Letters of recommendation must be submitted by the originator through a direct link provided by OptomCAS. It is the applicant's responsibility to ensure all application materials are received by the Centralized Application Service center by March 1 to be considered for admission to the class entering in August of the same year. Application material received after March 1 will not be evaluated for the class entering in August of the same year. To ensure that all materials will be processed in time, we strongly encourage students to complete his/her OptomCAS application and ensure all transcripts and letters of recommendation are received at OptomCAS at least four weeks prior to the March 1st deadline. To be considered for merit scholarships, there is an early application deadline. All materials must be received by January 15 in order to be considered for the early application deadline. Applications received after that time will still be considered for admission but not for additional awards, e.g. merit scholarships, state seat contracts.

International Students

International students whose native language is not English and who have spent less than two of the last three years in an English-speaking country are required to submit scores from an internationally accepted standardized examination before a decision is made on admission.

To complete their credential file, applicants are required to furnish original and official transcripts the year prior to admission from each school and college attended both in the U.S. and abroad. All international transcripts must be evaluated by The Educational Credentials Evaluators, Inc. or the World Education Services and these evaluations should be sent directly to the UMSL. International transcripts should not be sent to OptomCAS.

For information contact:

Educational Credentials Evaluators, Inc.

101 W. Pleasant St., Suite 200

Milwaukee, WI 53212-3963
(414) 289-3400
Fax: (414) 289-3411
Email: eval@ece.org
Web site: https://www.ece.org

World Education Services

PO BOX 2008 STN MAIN

NEWMARKET ON, L3Y 0G5
(800) 361-3106
Fax: (212) 739-6100
Email: info@wes.org

Web site: https://www.wes.org/

The University of Missouri-St. Louis maintains an Office of International Student Services to assist applicants who have been offered admission. All new international students are required to attend a formal orientation program before matriculation. For more information, contact:

University of Missouri-St. Louis

UMSL Global
1 University Blvd. 362 Social Sciences Building
St. Louis, MO 63121-4400
Phone: 1 (314) 516-5753

Fax: 1-314-516-5636
Email: iss@umsl.edu

Web site: https://www.umsl.edu/global/index.html

Selection Procedures

Applications are reviewed beginning after July 1 of the year prior to matriculation with interviews starting in August. The college uses a 'rolling admissions' process that allows qualified applicants to be admitted on an ongoing basis until the class is filled. Therefore, applicants are encouraged to apply as early as possible to ensure full consideration for admission.

The Admissions Committee has the responsibility to review and evaluate all applicants and select the best qualified candidates. The committee considers: cumulative GPA, science GPA, and OAT scores (The College also accepts the MCAT, PACT, DAT, and GRE scores). Candidates are also evaluated on less quantitative measures such as extracurricular activities and interests, related or unrelated work experience, essay, and letters of recommendation.

Those applicants whom the committee finds to be most competitive will be invited for an interview (on-campus or virtual). The interview facilitates an assessment of the applicant's communication skills, interests, motivation, and personal characteristics. In addition, the interview allows the applicant to tour the facilities, meet with currently enrolled students, and learn more about the University of Missouri-St. Louis and the College of Optometry. From this group of interviewed applicants, the entering class of 48-50 students, plus any alternate positions, will be selected.

Once an offer of admission is made to an applicant, the applicant will be contacted by OptomCAS to complete a criminal background check. We encourage applicants to review the criteria for background check on the OptomCAS website: www.optomcas.org

The policies of the University of Missouri-St. Louis and the College of Optometry comply with the provisions under those laws that forbid discrimination on the basis of race, color, religion, sex, sexual orientation, national origin, age, disability or veteran status.

Financial Aid

The University of Missouri-St. Louis maintains an Office of Student Financial Aid to assist students with the cost of their education.

Financial assistance is available in the form of loans, scholarships, and work-study. Funds for these programs are available from federal, private, state, and institutional resources. To apply for financial aid, students must complete a Free Application for Federal Student Aid (FAFSA). Preference will be given to those students who have completed the FAFSA by March 1. Preference means that the Student Financial Aid Office will begin awarding FWS (Federal College Work-Study), and maximum government allowable funding under subsidized loans. A completed financial aid application means that the Financial Aid Office has received an official Student Aid Report from the Federal Processing Center. Information about Federal loan programs and FAFSA are available at https://studentaid.gov/.

To be considered for all university scholarships offered through the Financial Aid Office, a student must be accepted for admission.

Many state optometric associations and their auxiliaries offer scholarships and grants. Application is generally made directly to the state association or auxiliary and selection is generally made on the basis of state residence and other criteria. Information may be obtained by writing to the various state optometric associations and/or auxiliaries.

Fees

All students enrolled in the University must pay fees based on either the schedule for Missouri residents or the schedule for non-residents. All optometry students will be required to pay the non-resident fee if they do not meet the University of Missouri residency requirements at the time of enrollment.

For current optometry fees and costs, please check the tuition and fees section of the Student Financial Services Website. In addition, the Patient Care Center fee is applied to the fall and spring semesters.

In addition to the fall and spring semesters, students are enrolled in the summer terms following their second and third professional years.

The university reserves the right to change fees and other charges at any time without advance notice.

Kansas Residents

Twelve positions (average of three each year) are allocated by state reciprocal agreement with the State of Kansas for residents of Kansas. Individuals who are admitted under these agreements will pay reduced non-resident fees. To apply for this award, applicants must be certified as a Kansas resident and meet financial need (FAFSA). Additionally, Kansas residents accepting a seat are required to return to Kansas to practice following graduation or completion of a residency program. For additional information, contact:

Kansas Board of Regents

Kansas Optometry Service Scholarship
1000 S.W. Jackson St., Suite 520
Topeka, KS 66612-1368
(785) 460-4233

https://kansasregents.org/scholarships_and_grants

Graduation Requirements

All courses taken for credit in the professional program must be passed with a "C-" or better in order for a student to qualify for graduation. The College of Optometry does not recognize a "D" grade for courses taken for degree credit; and for a student enrolled in a patient care course. Therefore, any grades lower than a "C-" will be recorded as an "F" and have 0 grade points. Furthermore, in order to qualify for graduation, a student must be in good academic standing and the cumulative professional Grade Point Average (GPA) must be 2.50 or higher. Students must submit evidence to the Office of Student Services that they have taken the 3 part NBEO examinations prior to graduation. Such evidence may include a copy of the score report received from NBEO.

All required courses for the O.D. degree must be completed within six (6) years after the first course enrollment.

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 opthalmic 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 aniseikonias.

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

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

OPTOM 8780 External Rotation in Institutional Patient Care: 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 8800 External Rotation in Pediatric/Binocular Vision Patient Care: 7 semester hours
Prerequisites: Successful completion of all first, second and third year coursework. Comprehensive clinical care of pediatric/binocular vision 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 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 8811 External Rotation in Ophthalmic Surgical Patient Care: 7 semester hours
Prerequisites: Successful completion of all second and 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.

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 Primary Care: 7 semester hours
Prerequisites: 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.

OPTOM 8815 External Rotation in Pathology and Treatment: 7 semester hours
Prerequisites: 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.

OPTOM 8816 External Rotation in Ophthalmic Laser Treatment: 7 semester hours
Prerequisites: 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.

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 8820 External Rotation in Low Vision Patient Care: 7 semester hours
Prerequisites: Successful completion of all first, second and third year coursework. Comprehensive clinical care of low vision 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 8830 External Rotation in General Patient Care: 7 semester hours
Prerequisites: 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 School of Optometry's Externship Council. This course fulfills one of the clinic courses required for graduation.

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

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

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.