

College of Optometry

This section contains an abbreviated version of the College of Optometry Bulletin. Some information is omitted.

For the most complete and accurate information regarding the Optometry program at UMSL, please go to the College of Optometry Home Page.

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 7800 Natural Bridge Road. A five-story building houses the College's classrooms, laboratories, research facilities, administrative offices, and the Center for Eye Care campus facility (the University Eye Center).

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 University Eye 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 East St. Louis Community College Center. 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 curriculum emphasizes basic and biomedical sciences and introduces students to optics of the visual system. The second year pertains to vision science and instruction in clinical examination techniques. The third year emphasizes patient care and introduces the student to specialty areas within optometry, such as contact lenses, pediatrics and geriatric vision care, binocular vision and vision therapy, and low vision rehabilitation. The

second and third years also include course work and clinical instruction in ocular disease and pharmacology. The fourth year includes six 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 University Eye Center, Lindell Eye Center, the East St. Louis Center, 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 six (6), eight (8) week externships are selected and scheduled with consideration given to the individual student's interest, needs and future practice intentions. Externship Rotations are located throughout the United States and select international sites. 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
- Sports Vision Patient Care
- Optometric Rehabilitation Patient Care

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, and members have organized and participated in a variety of community service activities, including community health screenings and 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 are able to 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 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 their respective majors 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. You can also visit the Pre-Health Advising Website for additional information at: <http://www.umsl.edu/divisions/artscience/student-resources/prehealth/index.html>.

The Pierre Laclède 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 Laclède Honors College program. For more information about the Scholars Program, contact the Pierre Laclède 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
 - Biology (including laboratory)¹ - 3
 - Physics (including laboratory) - 2
 - Chemistry²
 - General (including laboratory) - 2
 - Organic (including laboratory) - 1
 - Calculus - 1
 - Statistics - 1
 - Psychology - 1
 - Liberal Arts - 2
- Quarter :

- English - 3
- Biology (including laboratory)¹ - 4
- Physics (including laboratory) - 3
- Chemistry²
 - General (including laboratory) - 3
 - Organic (including laboratory) - 2
- Calculus - 1
- Statistics - 1
- Psychology - 1
- Liberal Arts - 2

- ¹ One semester (or one quarter) of Microbiology with laboratory is a requirement. 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. 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 Credit (AP) Policy (effective July 1, 2014)

A total of 10 hours of AP credit is acceptable if the applicant scored 4 or greater in the subject on the AP Exam. An official transcript is required.

For science courses, in addition to the 10 hour limit and a score of 4 or higher achieved on the exam, the applicant must score a 330 or higher in relevant subject areas of the OAT exam.

Admission Test

Students should work with their undergraduate advisors as well as their academic advisor in optometry, to insure that all pre-requisite courses are taken prior to taking the Optometry Admission Test (OAT).

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), and the Pharmacy College Admissions test (PCAT). 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. Students should plan to take the OAT after completing courses that are tested on the exams. Typically students should plan to take the exam during the summer between the third and fourth year of their undergraduate program.

Applicants are encouraged to take the examination by June of the year of application to the College of Optometry. If applicants wish to enhance their scores, the examination may be repeated. For OAT information, contact:

Optometry Admission Testing Program

211 East Chicago Ave.
Suite 1846
Chicago, IL 60611
(312) 440-2693
<http://www.opted.org>

To apply to take the OAT, please click on the OAT link on www.opted.org (<http://www.opted.org>) (on right).

Application Procedures

The 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:

*Asterisked items are processed by Centralized Application Service:

- *Verified Centralized Application Service (OptomCAS) application
- Supplemental Application through UMSL including a \$50.00 non-refundable application fee
- *Three letters of recommendation including one from a practicing optometrist processed through OptomCAS
- *Official scores from qualifying examination (OAT)

Please send directly to OptomCAS:

- *Official high school and college transcripts, followed by updated transcripts as they become available. (Exception: graduates of international programs see deadline requirement for all transcripts).

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. AP Scores should not be sent to OptomCAS.

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 April 1 to be considered for admission to the class entering in August of the same year. Application material received after April 1 will not be evaluated for the class entering in August of the same year. To insure that all materials will be processed in time, we strongly encourage students to complete his/her OptomCAS application and insure all transcripts and letters of recommendation are received at OptomCAS at least four weeks prior to the April 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.

Post Office Box 514070
Milwaukee, WI 53203-3470
(414) 289-3400
Fax: (414) 289-3411
Email: eval@ece.org
Web site: <https://www.ece.org> (<http://www.ece.org>)

World Education Services

P.O. Box 5087
New York, N.Y. 10274-5087
(212) 966-6311
Fax: (212) 939-6100
Email: info@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

Office of International Student Services
One University Blvd.
St. Louis, MO 63121-4499
(314) 516-5229
Email: iss@umsl.edu

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. 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 on-campus interview. The on-campus interview facilitates an assessment of the applicant's communication skills, interests, motivation, and personal characteristics. In addition, the on-campus 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 46-48 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 (<http://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.

Admission Process

Notices of acceptance may be received as late as July of the year in which the students enter the program. Individuals on the alternate list may be contacted at a later date. If acceptance to the class is conditional, the terms of the condition must be completed prior to matriculation. Applicants who have indicated that degree requirements will be completed prior to matriculation, and who have been selected for admission, may receive a conditional offer of acceptance contingent upon completion of the degree and any outstanding prerequisites.

Students offered admission have 20 days from the date on the offer of admission letter to make a required \$500 seat deposit. The \$500 deposit will be credited toward tuition when the student matriculates. If the student withdraws from consideration prior to May 15th, \$250 will be refunded. After May 15th, no refunds will be given. There is a \$250 administrative fee.

A certain number of applicants are placed on an alternate list. If an applicant who has been offered admission declines the offer, their position will be allocated to the next individual on the alternate list.

Notification of denial is sent by mail and/or email. Applicants who do not receive an offer of admission may reapply the following year through OptomCAS.

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 www.fafsa.ed.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.

The College of Optometry provides additional information about scholarships via the Handbook of Loans, Scholarships, Grants, and

Awards once an offer for admission is accepted. Many of the scholarships are listed on the College Website.

Fees

Detailed information regarding current fees and residency regulations is furnished on the UMSL Cashier's website.

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

Education Fees

All students enrolled in the University must pay educational 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 educational fee if they do not meet the University of Missouri residency requirements at the time of enrollment.

For current fees and costs, please check the fee section of the Cashier's Website and be certain to select appropriately optometry resident / nonresident.

A Summer Session is required following the second and third professional year.

Other Required Fees

All students are required to pay the following fees each semester: Information Technology Fee; Student Facility, Activity, and Health Fee. In addition, the University Eye Center fee is applied to the fall and spring semesters. Please refer to the Fees Section of the Cashier's website for current fees and caps on fees.

Student Health Insurance (optional)

An Accident and Sickness Insurance plan is available to students and their dependents. Information concerning premiums and coverage is available upon request from University Health Services or call (314) 516-5671.

Nonresident Students

Optometry students who do not meet the residency requirements must pay the nonresident educational fee according to the schedule above. A definition of "residency" is outlined in Tuition and Residency Rules, available in the cashier's office. (314-516-5151) Students are responsible for registering under the proper residence and paying the proper educational fees.

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 bonafide 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) 296-3518.
Kansas Board of Regents Website

Four-Year Professional Degree (O.D.) Curriculum

Curricular Outcomes

Entry Level Practice Standards

Established 2001; Revised 2001, 2010, 2011, 2012, 2015 and 2016

Doctors of Optometry must have an established knowledge of the basic and clinical sciences in order to provide quality eye and vision care to their patients. The academic foundation must be broad and include the biological, medical, vision and optical sciences, as well as a basic understanding of the health care delivery system. A doctor of Optometry must recognize the dynamic nature of knowledge and possess the commitment and skills needed to responsibly assess and apply new information and treatment strategies throughout their career.

The UMSL College of Optometry shall ensure that before graduation each student will effectively utilize and demonstrate a working knowledge in patient care with each of the following areas:

I. PATIENT HISTORY

1. the basic elements of a comprehensive patient history
2. the ability to obtain an efficient patient history necessary for a problem oriented examination
3. the proper standard of recording patient history in EHR
4. the ability to relate patient history to examination findings

II. OPTOMETRIC KNOWLEDGE

5. basic body systems, with special emphasis on the ocular and visual system and their interrelationships to the body as a whole;
6. the impact of genes and their interaction with behavior, diet and the environment on human health;
7. the various processes and causes that lead to dysfunction and disease and the effect that these processes can have on the body and its major organ systems, with special emphasis on the ocular and visual systems;
8. the mechanisms of actions of the various classes of pharmaceutical agents, including injectable agents, and their interactions;
9. the structures and processes contributing to the development of refractive error and other optical or perceptual abnormalities of the visual system;
10. the optics of the eye and ophthalmic lens systems - including spectacles, contact lenses, and low vision devices;
11. principles of the effects of radiant energy on the eye, including environmental lighting and ophthalmic lasers

III. PATIENT CARE

12. ophthalmic lens systems used to correct refractive, oculomotor and other vision disorders;
13. visual development and vision function with respect to deviation and enhancement of conditions such as, but not limited to, strabismus,

amblyopia, ocular motility, accommodation, vergence and visual perception;

14. vision therapy and other rehabilitative methods used for the management of common visual disorders;
15. the detection, diagnosis, treatment and management of ocular disease and ocular manifestations of systemic disease;
16. the safe and effective use of pharmaceutical agents for the treatment of disease and conditions affecting the eye and visual system, and recognize adverse reactions;
17. the strategies, interventions, and support system to best meet the unique needs of each patient regardless of age, taking into account co-existing medical conditions, medications, dietary needs, family issues, and social concerns
18. the utilization of injectable agents for the management of ocular and systemic diseases
19. the concepts of refractive surgery and its management;
20. basic life support skills for prevention and response to life-threatening emergencies;
21. the use of ophthalmic lasers in the management of refractive error and other anomalies of the eye;
22. the use of evidence from well designed and conducted research in healthcare decision-making

IV. CLINICAL SKILLS

23. the importance of performing necessary examination techniques competently and efficiently
24. the capacity to adapt the administration of clinical tests to meet the needs of the patient
25. the obligation to maintain clinical skills through practice and repetition

V. RECORD KEEPING

26. the significance of proper documentation in the electronic health record
27. the proper use of abbreviations
28. the appropriate notation of clinical observations

VI. INTERPERSONAL AND COMMUNICATION SKILLS

29. the critical elements of verbal and written communications with patients and other health care professionals;
30. the psychosocial dynamics of the doctor/patient relationship;
31. the need for clear, accurate and appropriate documentation of patient encounters;
32. the manner in which people of diverse cultures and belief systems perceive human health and illness and respond to various symptoms, diseases and treatments;

VII. INTRA/INTER PROFESSIONAL CONSULTATION/PRACTICE

33. when there is a requirement for intra/inter professional consultation

34. the process of coordination among professionals involved in a patient's care

VIII. PROFESSIONALISM

35. the need for a commitment to uphold the ethical obligations of the Optometric Oath;
36. the specific duties and responsibilities toward the individuals they serve and toward society as a whole;
37. the provisions to guarantee patient privacy and medical record security as expressed by HIPAA regulations;

38. inter-professional values, related ethics and relationships among the professions;

IX. SYSTEMS-BASED PRACTICE

39. the practice management structure and strategies as they pertain to different practice settings;
40. the broad-based, multidisciplinary nature of the health care delivery system;
41. the role of the optometrist as a primary health care provider;

X. PRACTICE-BASED LEARNING

42. the conscientious use of current best practices in patient care decision making;
43. the necessity for a commitment to lifelong learning;
44. the information management systems and technology used in the delivery of eye and health care.

Grades

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.

To assure graduating at the end of a specific semester, all work for that semester and any delayed grades from previous semesters must be completed with the grades sent to the Office of Student Services no later than the official date for submission of final semester grades.

Time limitations

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

Continuing Education

The College of Optometry offers continuing education programs for optometrists throughout the Midwest region as well as nationwide. Courses on nutrition, management of ocular diseases, ocular anomalies,

and visual skills are held on a frequent basis. In addition to College of Optometry faculty, optometric specialists, medical educators, and researchers have input into course development as well as participation in course presentations. All CE courses offered by the college are COPE approved and accepted by those states requiring continuing education credit for re-licensure.

Continuing Education course information may be obtained by contacting:

University of Missouri-St. Louis College of Optometry

Educational Program Coordinator
One University Blvd., 331 Marillac Hall
St. Louis, MO 63121-4499
(314) 516-5615

Career Outlook

Doctor of Optometry Degree

According to the American Optometric Association, Doctors of Optometry (OD's) are the independent primary health care professionals for the eye. Optometrists examine, diagnose, treat, and manage diseases, injuries, and disorders of the visual system, the eye, and associated structures as well as identify related systemic conditions affecting the eye.

- Doctors of Optometry prescribe medications, low vision rehabilitation, vision therapy, spectacle lenses, contact lenses, and perform certain surgical procedures.
- Optometrists counsel their patients regarding surgical and non-surgical options that meet their visual needs related to their occupations, avocations, and lifestyle.
- An optometrist has completed pre-professional undergraduate education in a college or university and four years of professional education at a college of optometry, leading to the doctor of optometry (O.D.) degree. Some optometrist's complete an optional residency in a specific area of practice.
- Optometrists are eye health care professionals state-licensed to diagnose and treat diseases and disorders of the eye and visual system.

--Approved by the AOA Board of Trustees, 2012

As primary eye care providers, Doctors of Optometry are an integral part of the health care team and an entry point into the health care system. They are skilled in the co-management of care that affects the eye health and vision of their patients and an excellent source of referral to other health care professionals.

The scope of optometric practice requires an understanding of the development and maintenance of vision from infancy through adulthood, and the therapeutic and rehabilitative methods required to care for eye and vision abnormalities that affect people of any age.

Optometry is the largest eye care profession and one of the largest independent health care professions in the United States. Currently, some 34,000 Doctors of Optometry practice in America. They are widely distributed across the nation, practicing in more than 7,100 different municipalities. In more than 4,300 of these communities, they are the only primary care provider. As such, Doctors of Optometry provide the major portion of primary eye care services in the United States.

Studies have indicated that a ratio of one practicing Doctor of Optometry to every 7,000 people (a ratio of 14.3 practicing doctors of optometry per 100,000 populations) is a reasonable average for the United States. Despite recent growth in the profession, few states meet this criterion.

As our society becomes more technically oriented, vision requirements become more exacting. The number of persons needing professional help for reading and other near-point visual tasks, and computer usage among all people including young children, is steadily growing. Increased demands for vision care result not only from population growth but also from increased understanding of how quality vision relates to industrial production, student achievement, adjustments to aging, and other areas crucial to modern society.

As a result the patients have more varied and challenging needs. On any given day, a Doctor of Optometry could be involved in restoring functional vision to a partially sighted patient; fitting glasses for a child whose vision problem is affecting academic achievement; treating an eye infection with antibiotics; improving the function of a patient's eyes through vision training; helping an elderly patient in a nursing home cope with changing vision through critical eye health education; co-managing eye or systemic health problems with a physician specialist; and performing comprehensive eye examinations for those who need glasses or contact lenses to correct astigmatism, nearsightedness, and numerous other vision problems.

The practice of optometry offers independence, flexibility, and diversity. Doctors of Optometry have a wide range of modes of practice. They may choose to practice in the inner cities, suburbs, and rural areas. Opportunities exist for solo practice, associateship, optometric or multidisciplinary group practice, government or military service, clinical or hospital practice, teaching, and research.

Optometry is a rewarding career, both economically and personally. Based on data from the Bureau of Labor Statistics and surveys by professional associations, optometry is one of the top 10 income-earning professions in the country.

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: 5 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: 2 semester hours

Prerequisites: OPTOM 8370. The third course in the foundation series that addresses ocular and systemic diseases and their management.

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 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: 2 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: 6 semester hours

Prerequisite: 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. The laboratories will emphasize and augment important concepts introduced in the classroom environment.

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: 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: 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 IV: 2 semester hours

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

OPTOM 8880 Clinic Seminar: 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.