Indiana University School of Optometry
Professional Optometry Degree Program

Entry-Level Standards for the Practice of Optometry

An entry-level practitioner is able to manage patients who present with a vision-related problem or a systemic condition that manifests ocular signs or symptoms. This includes differential diagnosis and treatment of any condition that is within the scope of practice as established by state laws regulating optometric practice. The entry-level practitioner is able to detect and assess the health risk of all other abnormalities manifest by the visual system, so as to make the appropriate referral.

Indiana University School of Optometry graduates must be able to provide quality eye and vision care to their patients and must have an established knowledge of the basic and clinical sciences. The 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. Graduates 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 his/her career.

An essential objective of the Indiana University School of Optometry is to promote high standards of professional conduct, optometric education, and practice in order to train future optometrists who will serve the primary vision and eye care needs of the public and enhance the visual development and quality of life of the world’s adults and children.

The graduates of Indiana University School of Optometry are primary health care providers trained and skilled in the examination of the eyes for defects in the visual system and ocular diseases or conditions related to systemic health. As entry-level practitioners, they must possess the ability to detect, diagnose, treat and manage ocular disease and provide rehabilitation of conditions related to the visual system, which include spectacles, contact lenses, visual therapy, and low vision devices, as well as differentially diagnose and assess conditions that may be outside their scope of practice in order to make the timely and appropriate referral.

The Doctor of Optometry (O.D.) curriculum is actively engaged in providing leadership and resources to all optometry students through clinical care, research, and education, while emphasizing the development of complete and well-rounded optometrists.

Curriculum Design to Ensure Entry-Level Competency

The clinical faculty of the Indiana University School of Optometry have analyzed the attributes set forth in the Association of Schools and Colleges of Optometry’s report “Attributes of Students Graduating from the Schools and Colleges of Optometry” published in the Journal of Optometric Education 2000; 26(1):15-18 and available as
These well-stated attributes of entry-level knowledge and skills were adopted and implemented by the IU School of Optometry.

The optometry curriculum is designed to adequately prepare students for entry-level practice according to the ACOE standard. The objective of the curriculum is to ensure that before graduation each student will have demonstrated knowledge, understanding, and skills in four principal areas: 1) basic sciences; 2) visual sciences; 3) applied specialties; and 4) clinical sciences and skills. The first three areas are primarily didactic/laboratory and include instruction in all of the theoretical, fundamental, and clinical phases of optometry and visual sciences.

Entry-level competency is an end product of curricular content, faculty effort, and student achievement. It is accomplished when the student has mastered and demonstrated the entry-level didactic material and integrated it with appropriate clinical experience during the four years of the professional degree curriculum.

The optometry curriculum includes instruction in all of the clinical, practical, theoretical and fundamental aspects of vision science, which support the conditions and standards of entry-level competencies that best define a comprehensively trained optometrist. The curriculum provides the following:

- **Medical/optometric knowledge**
  - Provide graduates with a broad knowledge and understanding of the fundamental, theoretical, and applied scientific principles of the anatomical, optical, physiological, behavioral, and perceptual aspects of the visual system relevant to the practice of optometry.
  - Provide graduates with an investigatory and analytical thinking approach to clinical situations and the ability to translate theory into practice in a clinical setting with the purpose of distinguishing morbid ocular and visual conditions from normal variations.
  - Provide graduates with the cognitive and motor skills needed to detect, recognize, diagnose, treat, manage, and prevent ocular disease and binocular vision anomalies and ocular manifestations of systemic diseases.

- **Patient care**
  - Provide graduates with the clinical science and skills to formulate a rational diagnosis and treatment plan in order to provide patient care that is appropriate, compassionate, and effective for the management and prevention of vision, eye, and health conditions.
  - Provide graduates with the experience and knowledge of a wide-range of optical appliances (spectacles, contacts, low vision aids), along with dispensing and patient education.
• Provide graduates with pharmacological principles in order to treat ocular diseases and monitor and recognize ocular adverse reactions to systemic medication.

• Provide graduates with instruction and certification in CPR in basic life support skills for emergencies encountered in the delivery of optometric patient care.

• **Professionalism**

  o Provide graduates with a sense of commitment to professional responsibilities, adherence to ethical principles of the Optometric Oath, and sensitivity to diverse patient populations and socioeconomic backgrounds.

  o Provide graduates with the ability to apply ethical and professional principles during decision-making and practice management processes.

  o Provide graduates with faculty role models to encourage a sense of commitment to professional service in organized optometry and the community.

  o Provide graduates with the ability to maintain clear, accurate and appropriate records and cultivate time management and organizational skills.

• **Communication skills**

  o Provide graduates with interviewing skills necessary to identify, record, and analyze problems, complaints, and pertinent history presented by the patient.

  o Provide graduates with the awareness of the role of an optometrist as a primary health care provider, providing patients with an important point of entry into the health care system through consultation or coordination of care by health care specialists.

  o Provide graduates with the opportunity to exchange information effectively with patients, their families, physicians and other health care professionals.

  o Provide graduates with the experience in communication skills that recognizes and respects patients’ cultural and personal diversity and HIPAA privacy regulations.

• **Evidence-based learning**

  o Provide graduates with the ability to use information/research to maximize patient care and the degree to which they are able to learn from past cases and/or errors.

  o Provide graduates with the skills to investigate scientific studies related to their patient’s condition and apply it to their practice.

  o Provide graduates with the opportunity to develop an investigative approach to academic subjects and clinical practice in order to incorporate theory with problem solving.
- Provide graduates with the experience and utilization of the full range of technology, including the use of ophthalmic materials, pharmaceutical agents, diagnostic laser technologies, functional rehabilitative therapies, and other diagnostic and therapeutic tools necessary to meet patient needs.

**Curriculum Assessment to Ensure Entry-level Competency**

The professional degree curriculum of the Indiana School of Optometry provides students with didactic and clinical courses to prepare them for entry-level practice, as defined by the program’s mission statement.

The School’s Curriculum Committee periodically reviews the curriculum in order to ensure that the current courses continue to provide the appropriate level of instruction. In addition, students provide valuable feedback in the form of course/instructor/consultant evaluations, as well as through membership on the Curriculum Committee and the Dean’s Student Advisory Committee. The Curriculum Committee closely monitors the goals established in the first three areas of curricular concentration (basic sciences, visual sciences, applied specialties) in order to increase the overall NBEO pass rate for our students. The clinical area of curricular concentration ensures formative and summative methods of student evaluation through a series of practical examinations designed to evaluate competency at each level of clinical course work, culminating in the NBEO.

The professional curriculum is comprised of 163 semester credit hours (i.e., one semester credit = one hour of didactic class time or three hours of laboratory/clinic time per week per semester), with an average of twenty credits per semester encompassing fifty-four courses. Overall, thirty-two percent of the courses and forty-one percent of the credit hours are dedicated to the clinical program. The School and its faculty view timely implementation of clinical skills education and the enhanced development of these skills as the ideal training paradigm. With this in mind, students are introduced to the clinical portion of training early in their education.

- **The first professional year**

The first year of the curriculum includes basic science courses and laboratories covering such topics as human and ocular anatomy, human and ocular physiology, biochemistry, optics, neuroscience, and pharmacology, as well as public health, ethics, and the history of the profession. The clinical experience begins in the fall with lecture course V550-Clinical History and Interview. The students are immediately immersed in communication, history-taking and interpersonal skills. At the conclusion of the course, the students are able to perform and correctly document a routine history in order to develop a working diagnosis based on the patient responses. HIPAA training is also a part of the early training of our students (http://www.indiana.edu/~opt/admin/hipaa/).

The foundational clinical skills are presented during the spring semester of the first year with lecture courses V551-Clinical Optometry and V553-Diagnostic Procedure I. During these courses, students begin to learn the cognitive and motor skills needed to conduct
optometric examinations using fellow classmates as patients for an average of six hours each week. At the end of the semester they take a practical examination utilizing a check sheet similar to Part III of the National Board of Examiners in Optometry. The students continue to gain clinical experience as a patient for third year students in the primary care clinic and for the second year competency examination. First year students are further encouraged to participate in many of the volunteer vision screening programs conducted by the School and the VOSH program.

• The second professional year

The second year of the curriculum continues with basic science courses and optometric methodology. In the fall, the students complete the mechanics of the optometric examination and health assessment in V652-Clinical Optometry II and V654-Diagnostic Procedures II. The students must complete an evaluation of their skills at mid-term and at the end of V654. Their skills are tested utilizing an item check sheet similar to that used by the part III of the National Board of Examiners. In the spring, V656-Diagnostic III encompasses advanced case management and problem focused case analysis. This course brings together the important aspects of patient care and communication. It culminates in the Clinical Competency Examination, which each second year student must pass before they are assigned into clinic. The Competency Examination includes the necessary tests required to perform a comprehensive eye examination, including slit-lamp biomicroscopy, Goldman tonometry, and direct ophthalmoscopy. Under the direct supervision of clinical faculty, students have ninety-five minutes to complete the examination and the analysis and formulation of an appropriate assessment and plan. In addition to the competency, students must successfully pass an oral and two written examinations in order to complete V656.

Eligibility to enroll in V680-Introduction to Clinic (Summer Clinic) requires passing the Competency Examination. The School’s annual White Coat Ceremony recognizes the demonstrated competency of the students and represents their transition to the remainder of clinical course requirements and patient care. The students begin to see patients starting the second half of the spring semester as part of a two-day clerkship under the supervision of third year optometry interns and their assigned clinic faculty. They are required to observe and assist third year optometry interns conducting comprehensive eye examinations in the School’s Primary Care Clinic. Although the role of second year students is to assist in patient care, they may be assigned to conduct a comprehensive examination on their own, depending on the clinic needs. Second year students are evaluated by third year interns and their grade in V656 is affected accordingly. While in clinic, second year students have the opportunity to hear the dissection of the cases during the debriefing conference. Second year students spend an additional twenty hours in the Eyewear Center assisting patients under the supervision of the staff opticians.

Quality assurance and record review is an additional requirement of V656. Second year students must review completed comprehensive examination charts for completeness and legibility. Participation in the process teaches students how quality assurance is conducted, which indicators can be evaluated, and what health care plans may look for
with regard to outcomes. This assignment provides an excellent opportunity to orient students to the construction of the examination form, data entry, and clinical notation skills. In addition, it presents an opportunity for students to understand the concerns of quality assurance and the health care system, as well as introduce them to billing and medical coding with case examples.

A “Mock Module” workshop for all second year students is an additional requirement of V656. This workshop emphasizes advanced techniques, such as binocular indirect ophthalmoscopy, detailed biomicroscopic evaluation, including the use of fundus lenses in conjunction with the slit lamp, gonioscopy, and hand-held tonometry. In Mock Modules, one-half of the class performs a comprehensive exam on the other half. The interns approach clinical consultants for consultation once the exam is completed. This process mimics the process utilized in the evaluation of clinic performance on actual patients by the third year interns.

• **The third professional year**

The clinical experience by means of patient care begins in the School’s Primary Care Clinic. This provides a broad base of patients and clinical cases. Under the direct supervision of assigned consultants with a 4:1 student-faculty ratio, third year students see primary care, pediatric, geriatric, and contact lens patients and patients who may have mental and/or physical challenges. Immediately after the completion of the spring semester of the second year, the rising third year students enroll in V680-Introduction to Clinic. V680, which also includes CPR certification, has traditionally been the most intense and useful learning experience for the new clinician. On the first day of V680, the Chief of Primary Care Service references the *School of Optometry Clinic Policy and Protocol Manual* as part of a comprehensive orientation (http://www.opt.indiana.edu/manual/index.htm).

The scope of the orientation includes all of the third year clinical experience. The group is familiarized with protocol, proper documentation, billing and insurance, professionalism toward patients, patient communication, and other details regarding day-to-day patient care matters on the clinic floor. The summer clinic rotation is divided into five three-week sessions. Each group of interns is required to spend forty hours per week for three weeks in clinic for supervised patient care. This affords the new intern the opportunity to have an average minimum of thirty-five to forty total patient encounters for the rotation.

The third year curriculum continues to provide didactic courses that enhance and expand knowledge and skills in areas such as contact lenses, pediatrics, visual perception and training, geriatrics and low vision, and ocular disease, including therapeutics and post-operative cataract and refractive management. In addition, the interns participate in providing school vision screenings to over twenty central and south central Indiana schools during the fall semester. The clinical experience is divided into four eight-week clinic courses, V786, V787, V788, and V789, and is split between the School’s Primary Care Clinics at the Atwater Eye Care Center and the Community Eye Care Center. As a result, the students gain experience within a diverse socioeconomic patient base that
reflects the variety of the greater Bloomington area, much more so than the defined population of the University. During each eight-week course, students can have up to four comprehensive exam encounters per week and the opportunity to see a number of office visit/urgent eye care patients per week. The expected minimum of twenty patient encounters has been deemed appropriate. Student clinicians are expected to advance in knowledge and skill throughout the third year and demonstrate proficiency in clinical skills. Each rotation has a proficiency requirement that must be performed. Consultants utilize a check sheet similar to Part III of the National Board of Examiners in Optometry. To continue to the fourth year clinical rotations, the third year interns must demonstrate proficiency in Goldman tonometry, slit lamp skills and use of funduscopic lenses, binocular indirect ophthalmoscopy, and gonioscopy.

Attending doctors and consultants in the Primary Care Clinic understand the importance of instructing the interns and strive to achieve a balance between efficient patient care, intern supervision, and teaching. The clinical consultants provide the students with daily feedback. At the end of each clinic day, the performance of student clinicians is critiqued during case conferences. Consultants have the opportunity to hear interns “think aloud,” allowing the opportunity to provide substantive feedback. This allows the consultants the opportunity to gauge the knowledge of the interns and provide patient-based instruction with oral and written evaluations. A daily skills assessment form is completed with an outcome grade for each patient encounter. This format continues throughout the third year clinic courses. The expectations and specific requirements for each skill assessed are outlined in the clinic course syllabus.

V756-Clinical Assessment I and V757-Clinical Assessment II have been integrated to speed the development of problem solving strategies. These courses provide an introduction to clinical reasoning and problem formulation of differential diagnostic protocols for investigation of various visual problems. During the spring clinic rotations, the interns are introduced to case presentations. Each intern must give a twenty-five minute case presentation where the course instructor assesses the oral presentation and medical reasoning skills. Case presentations continue into the fourth year as part of the Bloomington rotation.

**The fourth professional year**

The fourth year begins immediately after the completion of spring semester final exams in the third year. It represents the completion of all didactic and classroom instruction. Each fourth year intern is assigned to four twelve-week clinical rotations, which include one rotation in each of the following: Bloomington Eye Care Centers (V885), Indianapolis Eye Care Center and/or an external site (V887), one primary care emphasis site (V888), and one ocular disease emphasis site (V888). The student clinicians are allowed to list their preferences sequentially in order to tailor their clinical experience to their area of interest.

In order to ensure entry-level competency, each intern must rotate through the Bloomington Eye Care Centers. They are scheduled in the Pediatric and Binocular
Vision Service, Low Vision Service, Contact Lens Clinic, and Ophthalmic Disease Service. Clinic training in binocular vision, pediatrics, low vision, and contact lenses is not guaranteed at all external sites. Therefore, the Bloomington rotation ensures the clinical knowledge and experience for entry-level practice in the following areas:

- The Pediatric and Binocular Vision Service provides the student practitioners with the ability to properly and effectively examine and manage the various conditions commonly seen in the pediatric environment. The students see approximately forty pediatric patient encounters, including school age pediatric patients, preschool aged patients, infant to toddler patients, binocular vision disorders, visual information processing assessment, and in-office vision therapy sessions. This is in addition to the pediatric patients seen in third year clinic and on external rotations.

- The students gain experience in the applications of contact lenses during rotation through the Bloomington Contact Lens Clinic. This rotation covers the fitting and care of patients requiring specialty contact lenses and the more difficult cases, including, but not limited to, correcting astigmatism, tinted and cosmetic lenses, fitting the presbyopic patient, fitting infants and children, fitting keratoconic patients, and fitting post-surgical and other distorted corneas. By the end of their fourth year, approximately ten percent of patients seen will be contact lens patients.

- The Low Vision Service provides the students with experience in special examination procedures and patient management techniques for the visually impaired. The interns spend twelve half days (one half day = four hours) at the Indianapolis Eye Care Center or Community Eye Care Center and learn how to provide evaluations and prescriptions of optical, non-optical, and electronic devices, as well rehabilitative services.

A three-hour seminar course is maintained during this twelve-week period to update students on the most recent information within the profession, to offer a forum for the discussion of observations and problems encountered in clinical care, and to provide professional health systems information as well as case presentations. While assigned in Bloomington, all students are required to participate in the twenty-four hour emergency service under the supervision of a clinical faculty or resident. In addition, twelve fourth year interns have the opportunity during the academic year to rotate through the IU Health Center’s Urgent Eye Clinic, which is a cooperative center between IU School of Optometry and the IU Health Center.

The clinical experiences at the Indianapolis Eye Care Center are very similar to those at the Bloomington Eye Care Centers, which include contact lenses, binocular vision and pediatrics, low vision, and primary care. The urban patient population differs from the Bloomington population in that it includes many homeless and severely disadvantaged patients, as well as more ethnically diverse patients. The patient population is approximately thirty-five to forty percent African American and ten to fifteen percent Hispanic. Within this primary care setting, each intern experiences between 135 and 175 patient encounters and a large amount of ocular disease, such as glaucoma, surgical post-operative care, and a wide range of patients with various ocular and systemic pathologies (http://www.opt.indiana.edu/clinics/centers.htm). The IECC also provides interns the
opportunity to experience patient care in non-traditional settings, such as the state of Indiana correctional facilities, nursing homes, in-home patient care, and community health clinics and hospitals. The non-traditional settings help expose the students to a variety of practice modes and experiences. The clinic receives a large amount of RGP referral fits from nearby Wishard Hospital, the VA, and the prison system. The location of the clinic in downtown Indianapolis adjacent to the Indiana University Medical Center campus makes it a high volume multi-disciplinary eye care facility. Many opportunities for interaction with the Indiana University Medical Center also exist at the optometry clinic in IU Medical Center at Carmel (Indiana), which is a relatively new facility that will potentially enhance the scope of the intern’s clinical education.

Additional primary care and ocular disease experiences are gained at the external sites of the student’s choice. The students can choose from twenty-two primary care facilities and twenty ocular disease centers. Each intern is scheduled for one twelve-week rotation at a primary care facility and one twelve-week rotation at an ocular disease center. The primary care clinics provide real world experience with large patient volumes and intense problem solving opportunities. The ocular disease rotations ensure that our graduates receive advanced training in ocular disease diagnosis, treatment, and management at the highest level. The faculty at the respective clinics monitor the interns’ performance. A performance evaluation, along with a final grade, is submitted to the School’s Director of Clinics at the completion of the rotation.

At the completion of the fourth professional year, students will have gained entry-level competency through experiences with primary care patients (41%), ocular disease patients (43%), contact lens patients (10%), and pediatrics, binocular vision, and low vision patients (6%). (These numbers represent calculations based on the Class of 2005 patient logs “class report” – each student in the class of 2005 logged 494 primary care patients, 506 ocular disease patients, 112 contact lens patients, 48 pediatric/binocular vision patients, and 9 low vision encounters.)

**Student Assessment to Ensure Entry-Level Competency**

Entry-level competency is the ability to perform the responsibilities required as professionals to the standards necessary for safe and effective practice.

The assessment of student performance, which occurs at every phase of interaction with the students, is a long-standing feature of the Indiana University School of Optometry. Student assessment in the areas of optometric/medical knowledge, patient care, professionalism, communication skills, and evidence-based learning has been the characteristic emphasis of the School’s professional training program. There are numerous subjective and objective, time-honored methods of examining students’ knowledge and entry-level competency, such as:
The evaluation of student performance and entry-level competency within the professional program incorporates a structured sequence of examinations, which include written, oral, and practical assessment.

Passing grades in each course, students are graded “A” to “F” in didactic and clinical courses.

Diagnostic skill proficiencies throughout the first and second years.

Clinical competency examination in the spring of the second year must be passed before students can start examining patients.

Daily clinical skills assessment during the third year, midterm evaluations of third and fourth year interns, daily case conference and debriefing.

Case presentations and reports.

Four competency examinations covering special diagnostic procedures must be passed during the third year clinic rotations before students can begin fourth year rotations.

Various clinic rotations are provided to teach, supervise, and observe the student’s care of patients.

Clinic record review and quality assurance.

Patient logs must be completed at the end of each clinic rotation before students can receive a final grade for the course.

Satisfactory performance evaluations by faculty in each fourth year clinic rotation must be given to each student before the student can graduate.

Training on HIPAA and patient privacy issues.

CPR certification.

It is the intent of the School of Optometry that its professional students be able to graduate after four years of instruction. Although primary responsibility rests with the student, the School will work to help all students achieve good academic standing and will seek out and attempt to provide remedial help for students who are having academic difficulties.

Students obtain knowledge and skills from reading materials, lectures, and didactic instruction, but learning from precept and example are still the most important ways that students are mentored to be professionals in optometric practice. The clinical program at the Indiana University School of Optometry is one of the School’s many acknowledged
strengths. The resources at the School include its diverse and strong faculty, the varied clinical population to which the students have access, the facilities in which the students provide care, and the scope of practice to which they are trained. The School takes great pride in the fact that the optometry faculty participate in clinical education, as well as the didactic training. The faculty feel this provides an assurance that students understand the application of didactic knowledge, presented in the classroom, to patient care encounters. This approach brings a sense of continuity and realism to the pre-clinical courses. The clinical program’s strength stems from its faculty and their dedication to patient care and teaching, as well as tenacious attention to maintaining the highest standards in selection of students and evaluative methods throughout the four-year program.

INDIANA UNIVERSITY SCHOOL OF OPTOMETRY
ENTRY LEVEL CLINICAL TRAINING

In order to accomplish entry level competency in patient care, Indiana University School of Optometry interns are expected to secure patient encounters in a variety of settings and specialty areas, both in-house and during their external rotations. Source for number/type of encounters: IU School of Optometry Patient Logs at http://www.opt.indiana.edu/opl/index.html (administrative access code required).

Second Year:

Primary Care
The second year students, having passed the Competency Exam (V656), become eligible to see patients in the Primary Care Clinic under the direct supervision of third year interns. This exercise amounts to two half days in clinic and 4 patient encounters per student.

Third Year:

Primary Care/Pediatrics/Binocular Vision

Third year interns begin their intensive Primary Care experience in the summer between their second and third years (V680). The experience is intense and on average amounts to 35 patient encounters per student.

During the academic year, the interns are scheduled 1.75 half days (V786, V787, V788, V789), and average approximately 25 patient encounters per 8-week session (80 for the year). The largest age group has been in the 40-64 year age group, ranging from 95-130 encounters; and the smallest age group, 0-13 years,
ranging from 0 to 5, with greatest exam types being routine or comprehensive eye exams, ranging from 60-100 encounters.

Contact Lens

The third year encounters with contact lens vary with location. The numbers indicate encounters with Primary Care patients who present with contact lenses, as well as new contact lens fits. These numbers average approximately 15 soft lens and less than 5 GP lens fits/follow-ups.

Ocular Disease

Defined as patients who might require immediate referral to secondary care specialist to needing non-routine follow-ups/therapy, these encounters range from 5-15.

Fourth Year:

Upon successful completion of the third professional year, the interns are placed in rotations, both in-house and externally. These rotations are 12 weeks in duration each and last all year (four rotations). One external site is devoted to high volume primary care practice. Additionally, the interns are exposed to primary care optometry in the contact lens and pediatric areas in Bloomington and Indianapolis. One rotation is generally a disease referral site. Again, the interns are exposed to ocular disease in Bloomington and Indianapolis rotations. Please note that the wide range of encounters in each specialty is the result of the interns’ schedule, classification of each encounter, and amount of freedom afforded the individual intern at a given external site.

Primary Care

Generally, the greatest patient encounters are within the age range of 40-64, with an average of approximately 450 encounters in Primary Care.

Contact Lens

The median number of soft lens patient encounters is approximately 50, and for GP lenses, 15.
**Pediatrics**

Reported average approximately 35-40 encounters.

**Binocular Vision/Vision Therapy**

While the Binocular Vision group is attempting to develop numbers for in-house Vision Therapy, the numbers reported for each of these areas range from 10-30.

**Ocular Disease**

A large range is noted (see above) of 1000+ to a low number of 20. However, the median appears to be approximately in the 300-350 range.

**Low Vision**

Generally a range of 10-20 encounters has been reported.