

Credits:

<http://www.100000freecliparts.com>
<http://www.btinternet.com/~fireballx15/medical/>
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Deborah Elkins
Juan Reynaud
Maxine Haslauer

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Required Text:

Basic Ophthalmology
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Course Coordinator:

Gale Marie Abbass
504/412-1200 x1349
gabbas@lsuhsc.edu



Comprehensive Third-Year Medical Student Course

All LSUHSC third-year medical students participate in one of the most comprehensive introductory eye care courses in the country. All doctors must have a basic knowledge of the eye and eye examinations. This intensive two-week program aims to help you become better doctors no matter what career path or specialty you choose. Instruction includes lectures, reading and possible audiovisual assignments, discussion, and demonstrations.

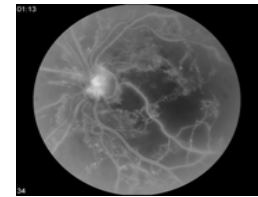
In small group workshops, you receive practical and personalized training in examination procedures and the use of ophthalmic instruments. Actual examination experience provides exposure to indicators of minor and major ophthalmic diseases, as well as significant ophthalmic findings associated with many disorders. You learn ophthalmic diagnosis and treatment techniques required of a general physician including history taking, diagnosis, and treatment of the visual system.

Optional activities include Advanced Eye Exam Workshops, community office or clinic visits, surgery observation, and tours of the LSU Eye Center including the AccessGrid room, Fakespace M1 Immersadesk, and laboratories.

You complete the program with the knowledge you will need to treat patients and to know when it is necessary to refer a patient to an ophthalmic specialist.

Hints for Drawing an Optic Disc

Hint #1: Start at some convenient position, for example, the 12 o'clock position on the disc, note the location of the artery nearest 12 o'clock, and sketch it in starting near the center of the disc where the artery begins, and follow it out onto the retina for a distance of 1 disc diameter superiorly. Note where it branches. Sketch that onto the circle drawing. Then look back at the fundus, verify the position to the artery, and sketch in the vein that usually is directly next to the artery. Go back and forth between fundus and sketch until you have gone around the circumference of the disc. This may take 15 to 20 trips between fundus and sketch until it is accurate. Sketch in every small vessel that you can see. Because the drawing only includes one disc diameter of the retina and vessels around the disc, you will not include the macular area or the fovea.

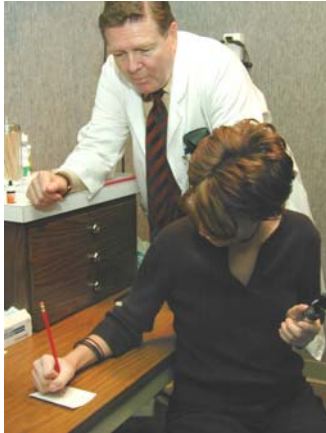


Hint #2: The configuration of the disc and the retinal vessels entering and exiting it are highly distinctive. The appearance of the optic disc and its vessels are as unique as a fingerprint: no two are alike. Be careful to record the exact course of each vessel, whether straight or convoluted.

Hint #3: All normal human discs have arteries and veins crossing the disc margin in every quadrant. If your drawing has no veins, for example, anywhere in the inferior temporal quadrant, better go look again.

Ophthalmoscopy

Draw Another Student's Optic Disc



Each student must submit a drawing of another student's optic disc and major retinal vessels. This drawing must be accurate! It will be compared with the Polaroid fundus photograph made of the disc area of each student. Inaccuracies on the sketch, or failure to comply with these conditions listed below, will result in a FAIL, which then can only be erased by re-submission of a proper drawing.

Drawings and photos will be returned the day of the final. Please look for them on tables outside of the exam rooms.

The drawing must be submitted on a white, unlined, 3"x5" card provided to you, and completed and submitted to staff the day of your workshop.

Grading is Pass/Fail. You must pass this to pass the course.

- ☞ The name of the student submitting the drawing must be printed at the top of the card--"artist."
- ☞ The student's name whose fundus is being drawn must be at the bottom of the card—"patient."
- ☞ The arteries must be drawn in RED.
- ☞ The veins must be drawn in BLUE.
- ☞ The size and position of the optic cup, if there is one, must be drawn in YELLOW.
- ☞ Pigmented crescents at the disc margin, or any pigmented area, in the retina or choroid must be drawn in pencil.
- ☞ You must sketch the exact position of the vessels on the disc and for a distance of 1 disc diameter in all directions beyond the disc. Total size of drawing will be an approximate circle 40mm in diameter.

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Course Information

Purpose:

Provide the knowledge and skills to perform a complete eye examination including history taking and physical examination that all physicians should know.

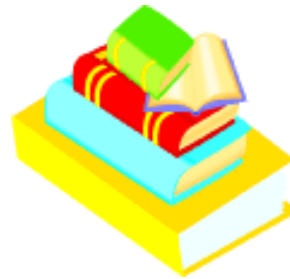
Provide important concepts of diagnosis and management of ocular disorders.

Provide a sense of what ophthalmology is all about so that students can make an informed decision about exploring further interest.

Provide specific information to help pass the USMLE examination.

Knowledge and Skills:

These objectives are clearly delineated in each chapter of the textbook.



Requirements:

Attendance at all Lectures

NB: There is an excellent chapter in the book on "Red Eye" and the topic will not directly covered in lecture.

Clinic Workshop

You will have one eye dilated at the end of the lectures on your workshop day. If you wear contact lenses, be prepared to remove your lens and have your glasses with you. If you have an ophthalmoscope, please bring it. If you do not have one, there is no need to buy one; we have them to share. You do not need to wear your lab coat. *You must pass the drawing exercise to pass the course.*

Final Exam

Multiple choice questions composed by faculty members in their areas of expertise based on reading material and lecture presentation.



Chief Resident Dr. Maguluri shows a student how to use an ophthalmoscope during a 2003 clinic workshop.



Basic Eye Exam

1. Visual Acuity:
Take and record for distance and near.
2. Confrontation Visual Fields:
Finger fields, color (red cap) fields, Amsler grid.
3. External Exam:
Lids and fissures, corneal clarity/luster/curvature, conjunctiva, eversion of upper lid, palpebral lobe of lacrimal gland.
4. Eye Movement:
Corneal light refraction, cover/uncover and, alternate cover induced phoria/tropia with prism then demonstrate phoria/tropia, six eccentric positions of gaze.
5. Pupil:
Light reaction (must control accommodation by maintaining gaze for distance), near reaction.
6. Intraocular Pressure:
Tonopen and applanation tonometry.
7. Slit Lamp:
Corneas, limbus, anterior chamber, iris, lens, etc.
8. Direct ophthalmoscopy:
Begin with plano or small plus lens, show red reflex test, then disc and vessels, eight zone search of periphery. You must see macula.

Grading:

F/P/HP/H

Fundus drawing grade is Pass/Fail (You must pass this to pass course.)

Departmental Contact Information:

Available on the website

<http://www.lsu-eye.lsuhs.edu>

Main phone number: 504/412-1200

Optional Opportunities:

Community Clinic/Office Visits

If you are interested in visiting a working office or clinic, please make arrangements with the course coordinator. Please dress professionally including your lab coat and LSU ID.

Advanced Clinic Workshop

After your required basic clinic workshop, you may participate in an Advance Basic Eye Exam workshop. A sign-up sheet is in the lecture room. This small group workshop is tailored to the individuals participating. Depending on interest, it may include the following examinations: color vision, visual acuity, near vision, stereo, slit lamp, confrontation field, comprehensive external, and/or pupils. There will be patients in the clinic, so please dress professionally including your lab coat and LSU ID.

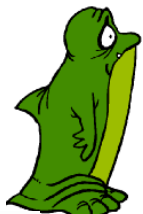
Tours of LSU Eye Center

This includes visits to the AccessGrid room, Fakespace M1 Immersadesk, and laboratories. Please wear your LSU ID.

Surgery Observation

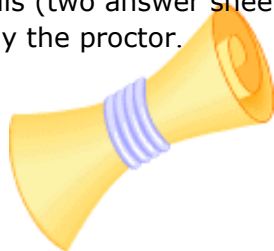
These are arranged through the course coordinator at any time during your education at LSU. Please wear your lab coat and LSU ID.





Final Exam Instructions

- ⤿ Please turn off your cell phones, pagers etc.
- ⤿ You may not use any electronic device. Please turn them all off. This includes calculators, PDAs, laptops etc.
- ⤿ Please remove your hats and place them under your chair.
- ⤿ You have 2 hours to complete the exam. You may leave quietly when you are finished.
- ⤿ If you need to leave the room, please give all your paperwork to the proctor. You will not have additional time to complete the test to make up for the time spent out of the room.
- ⤿ You must bring and use a #2 pencil.
- ⤿ Please put your name on the sheet with the test questions.
- ⤿ On the answer sheet, please put your last name, first name, and student ID (SS#), and darken the corresponding circles.
- ⤿ The answer sheets allow you to select A-E for answers although all questions may not have that many answers.
- ⤿ For True or False questions, please use "A" for True and "B" for false.
- ⤿ There are only 50 questions. There are more spaces for answers on your sheet than you need. Please be sure to use the number on the answer sheet that corresponds to the number of the question.
- ⤿ At the end, all the materials (two answer sheets, test questions) will be collected by the proctor.



Professional Organizations

- ⤿ American Academy of Ophthalmology (AAO) <http://www.aao.org>
- ⤿ Association for Research in Vision and Ophthalmology (ARVO) <http://www.arvo.org>
- ⤿ American College of Surgeons (ACS) <http://www.facs.org/>
- ⤿ Macula Society <http://www.maculasociety.org/>
- ⤿ American Society of Retina Specialists (Vitreous Society) <http://www.vitreoussociety.org>
- ⤿ New Orleans Academy of Ophthalmology <http://www.noao.org/>
- ⤿ American Association for Pediatric Ophthalmology and Strabismus (AAPOS) <http://www.aapos.org/>
- ⤿ American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) www.asoprs.org/
- ⤿ American Glaucoma Society www.glaucomaweb.org/
- ⤿ Pan American Association of Ophthalmology www.pao.org/
- ⤿ American Society of Cataract and Refractive Surgery www.ascrs.org/
- ⤿ International Society of Refractive Surgery of the AAO (ISRS/AAO) <http://www.isrs.org>

Professional Resource Links

- ⤿ Comprehensive Links List: <http://www.ajo.com/related>

Ophthalmology Skills and Tools

The ophthalmoscope and slit lamp

Ophthalmoscope skills are essential, but a slit lamp and a lens allow you to obtain a beautiful three dimensional view of the retina and optical disc. This wider image allows much greater visualization and appreciation of the structures at the back of the eye.

Lasers

Laser use is an inherent part of an ophthalmologist's practice. Lasers are used for retinal treatment in a variety of conditions and also for treatment to the iris or to eyes that have had cataract surgery. Laser treatment is an exciting and continually progressing branch of ophthalmology.



Surgical skills

Ideally, ophthalmologists are involved in both medicine and surgery, but if you are averse to operating, it is possible to specialize in medical ophthalmology. Ophthalmologists undertake delicate oculoplastic surgery, fine microsurgery using the operating microscope, and intraocular surgery at the front (anterior segment and cornea) or at the back (vitreoretinal surgery) of the eye.

Fellowships

One or two year training opportunities in subspecialties.

Certification

American Board of Ophthalmology.
<http://www.abop.org/>



USMLE Exam Information

(as of 6/05)

<http://www.usmle.org/bulletin/2005/examcontent.htm>

Step 2 Clinical Knowledge

Diagnosis

Disorders of the eye (eg, blindness; glaucoma; infection; papilledema; optic atrophy; retinal disorders; diabetic retinopathy; diplopia; cataract; neoplasms; vascular disorders; uveitis; iridocyclitis; traumatic, toxic injury; toxoplasmosis)

Principles of Management

(With emphasis on topics covered in Diagnosis)

Pharmacotherapy only

Management decision (treatment/diagnosis steps)

Treatment only

Step 2 Clinical Skills

You will probably be required to do a basic eye examination according to Dr. DiCarlo, LSUHSC Assistant Dean Office of Medical Education.

Step 3 Clinical Knowledge

Diseases and Disorders of the Eye

Ophthalmic manifestations of diabetes

Degeneration of macula

Retinal detachments, defects, and disorders

Disorders of eyelids/lacrimal system

Diseases of optic nerve/visual pathways

Other disorders of the eyes (incl. nystagmus)

Disorders of conjunctiva

Myopia

Visual disturbances

Cataract

Visual field defects

Strabismus

Chorioretinitis

Glaucoma

Diplopia

Orbital cellulitis

Corneal abrasion



Third and Fourth Year Student Electives

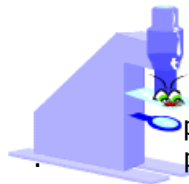
Third and fourth year students can select from a variety of clinical and research electives. These courses provide extensive exposure to the clinical practice of ophthalmology and to the basic scientific knowledge on which it rests.

Clinical Electives

You may participate in clinical activities with a senior resident or faculty member to gain further insights into patient management, disease treatment, and surgery. Areas of study include general ophthalmology, glaucoma, oculoplastic surgery, retina, neuro-ophthalmology, and cornea/refractive surgery.

Laboratory Vision Research Electives

You may participate in laboratory experimentation with a primary emphasis on laboratory vision research. Topics include mechanisms of corneal inflammation and wound healing; neurobiology of disease; confocal microscopy; immune response to experimental ocular herpetic infection; hyperspectral imaging to diagnose ocular vascular disorders; physiology and biophysics of transport processes; and ocular implant biocompatibility studies.



Clinical Vision Research Electives

You attend rounds and lectures, and participate in clinical research in progress.

Topics include clinical features and pathogenesis of Graves' orbitopathy; orbital and telemedical applications, eyelid implant designs, and application of corneal topography analysis.

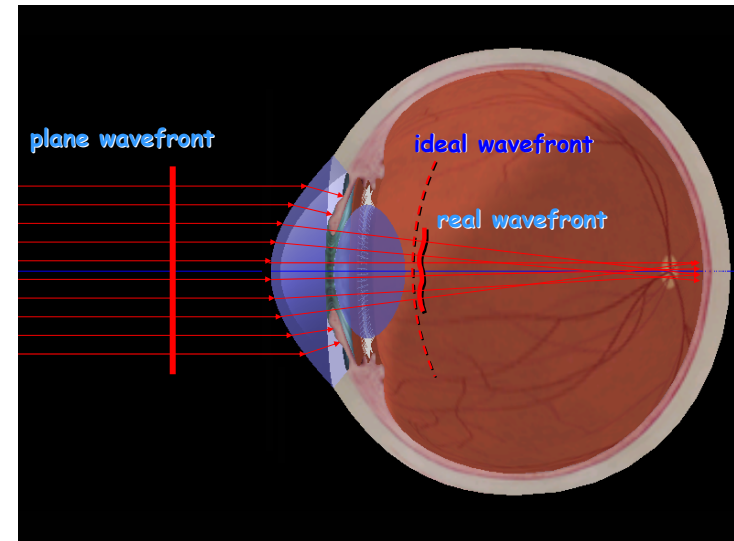
For more information, please contact [Student Affairs](#) at (504) 568-4874.

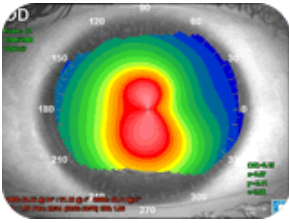
Pediatrics--Pediatric ophthalmology covers all the other subspecialties applied to children. It requires a very generalist approach and good rapport with children.

Medical--Pure medical ophthalmologists do not perform surgery. They deal with endocrinology, vascular disease of the eye, inflammatory disorders (both local and systemic), HIV, genetics, and neuro-ophthalmology. At present, part of higher specialist training in medical ophthalmology requires the trainee to undertake surgical training.

Cataract--Nearly all eye surgeons undertake cataract surgery, and will most likely perform cataract surgery at some point no matter what their specialty.

Refractive surgery--This involves using lasers or precise incisions to change the focusing power of the eye and thus negate the need for corrective lenses. The technology and skills are advancing rapidly, as is demand, for this exciting and highly lucrative subspecialty.





Subspecialties

Although at first sight (excuse the pun) the eye does not seem big enough to support subspecialties, ophthalmology is divided into numerous fields. In the future, few opportunities will be available for true generalists.

Oculoplastics--The management of skin and lid position abnormalities. Oculoplastic surgeons operate on the lids and the periocular skin. This subspecialty requires very delicate surgical skills much akin to those of plastic surgeons.

Cornea--The cornea, although only 1-2 mm thick, suffers from a plethora of pathology. The management of corneal dystrophies, corneal infections, and other causes of corneal opacification causing visual loss are the expertise of the cornea specialist. Corneal surgeons often undertake corneal grafts, replacing the whole cornea with donor tissue, and may enter the field of refractive surgery.

Orbit--Orbital surgeons specialize in disorders of the orbit, varying from orbital cellulitis and thyroid eye disease to orbital tumors.

Vitreoretinal--This branch of ophthalmology is probably the most technically challenging from a surgical perspective. These surgeons deal with retinal detachments and numerous other retinal disorders.

Strabismus--Surgeons who deal with pediatric or adult disorders of ocular alignment.

Glaucoma--Glaucoma specialists manage patients with glaucoma either medically or surgically.

Resources at LSU

AccessGrid room

[<http://www.lsu-eye.lsuhs.edu/Research/accessgrid.htm>]
The LSU Eye Center is one of the first ophthalmology departments in the United States to house an AccessGrid room. This facility promotes and enhances research collaboration with other AccessGrid-enabled institutions by allowing LSU Eye Center investigators to hold virtual meetings, share data, and run shared applications.

Fakespace M1 Immersadesk

The Immersadesk is an immersive display that is used to visualize three-dimensional data sets. 3D viewing software renders two separate views of the data; one for the left eye and one for the right. These views are displayed at a rate of 120 times per second. The user wears a pair of Crystal Eyes

LCD shutter goggles synchronized with the visualization server. When the view for the right eye is active, the goggles block the left eye and vice versa. The goggles also have a magnetic tracking device attached to a Polhemus Fastrack

processor that allows the tracking head

movement.

Interaction with the

data is

through a

hand-held

wand, a

6DOF (six

degrees of

freedom) device.





Ophthalmology as a Career

Ophthalmology is a sought-after lifestyle occupation. There is less on-call and "after hours" work than with many other specialties.

Ophthalmology is a very satisfying career because of its diversity. The specialty includes medicine and surgery, pediatric and adult patients, and primary care and highly specialized treatment. It is often a life-long relationship with patients. Also, most patient visits and ophthalmic surgery have positive outcomes.

Research in the field is broad and varied. Investigations encompass clinical trials, biomedical engineering, wound healing, infectious disease, genetics, drug delivery, and a plethora of other opportunities.

The American Academy of Ophthalmology, one of the primary professional organizations, has good information on ophthalmology as a career. Please see their website at <http://www.aao.org/aao/careers/envision/>

Much of the following is excerpted and edited with permission from http://www.studentbmj.com/back_issues/0702/careers/234.html

By Amar Alwitry AmarAlwitry@aol.com



Due to the enormous medical curriculum and the pressures on time in undergraduate training, ophthalmology teaching at medical schools tends to be quite a short-lived affair, with only

about two weeks being dedicated to this vast subject. Subsequently, when medical students graduate and begin to decide on their future career, few have had a true taste of ophthalmology. This can be a rewarding career despite the occasional clinic session fumbling with the ophthalmoscope, confidently saying you can see the disc margins clearly while being focused on an eyelash.

The eye is the window to the soul

Ophthalmology combines surgical skills with medical skills. There are few medical conditions that are not related to or may manifest as eye signs. Numerous rheumatologic, neurological, vascular, and cardiovascular conditions have ocular features, and these features may be the primary presentation of systemic disease.



Ophthalmologists deal with a healthy, elderly population. Patients walk in and out of a clinic under their own steam and are extremely grateful for anything you do for them. Often patients are followed up for an extremely long period of time, which allows for the building of a true rapport. On the flip side these innumerable follow up appointments may be draining on the doctor. Most operations are undertaken on a day case basis and under local anesthesia, which means few inpatients.

Career prospects

With the aging population and the higher and higher demands for ophthalmology services (cataract, low vision services) there will always be job opportunities for ophthalmologists.