



# Ophthalmology Module Booklet

2024-2025

## Introduction

Ophthalmology module is taken in the 5<sup>th</sup> year of medical college. The duration of the module is 14 weeks (one semester). The 5<sup>th</sup> year medical students are divided into two large groups A & B. Group A should finish the ophthalmology module in the 1<sup>st</sup> semester and Group B in the 2<sup>nd</sup> semester.

## Aim of the Ophthalmology Module

The aim of the ophthalmology module is to introduce the students to the basic knowledge, ways of examination and attitude they require to deal with patients with common ocular diseases.

The students are expected to attend all lectures of large group teaching and clinical sessions. A log book containing the requirement of student's exposure in the ophthalmology department clinic and operating theatre should be signed off by appropriate member of staff and submitted at the end of a two week clinical ophthalmology course.

## Teaching Staff of Ophthalmology and contact information

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## Learning Objectives of Ophthalmology Module

After the completion of ophthalmology module, the students should be able to:

1. Illustrate anatomy of the eye and visual pathway and apply this knowledge to understand common ocular diseases
2. To assess common ocular symptoms and signs and formulate a plan to reach the diagnosis
3. Identify the clinical features, explain the aetiology and pathogenesis and outline the management of common diseases affecting the eye in a systematic manner
4. Describe the ocular manifestations of important systemic diseases and formulate a plan to collaborate with other medical specialties
5. To express a professional attitude to discriminate alarming symptoms and signs of ocular diseases that require immediate attention and referral to specialist
6. To know the basic principles of clinical examination and investigations in ophthalmology with exposure to various ophthalmic tests in the ophthalmology section of the hospital

### **Clinical Ophthalmology Course**

1. History taking and Symptomatology
2. Visual Acuity and Refraction with observation of the tests
3. Ophthalmoscopy and fundus examination with practice of the use of direct ophthalmoscope and observation of Fundus camera and OCT machine
4. Clinical approach to red Eye with demonstration of lid eversion and use of fluorescein
5. Practice and assessment of ocular motility and strabismus
6. Clinical approach to loss of Vision
7. Assessment and practice of pupil examination
8. Visual field with demonstration and practice of confrontation visual field test
9. Demonstration of slit lamp examination
10. Observation of common ophthalmic surgeries

### **Large Group Teaching**

1. Anatomy of the Eye and Visual Pathway
2. Refractive Errors
3. Disorders of the Conjunctiva
4. Disorders of the Cornea
5. Uveitis
6. Sclera and Episclera
7. Diseases of the Lens
8. Strabismus
9. The Lacrimal Apparatus
10. The Eyelids
11. The Orbit
12. Glaucoma
13. The Retina
14. Neuro-ophthalmology
15. Trauma
16. Tumours in Ophthalmology
17. Laser in Ophthalmology

## The Learning Objectives of Clinical Ophthalmology Sessions

### History Taking and Symptomatology

- To Know the ways of focused history taking in ophthalmology with presentation of common case scenarios in ophthalmology clinic (cataract, squint and diabetic retinopathy) and understand the impact on patient's vision and lifestyle
- To assess and identify the common causes of different ophthalmic complaints

### Visual Acuity and Refraction

- To describe the methods of visual acuity in children and adults with exposure in the Ophthalmology clinic
- To have a basic understanding of types of refractive errors
- To describe methods of refraction with exposure in the Ophthalmology clinic to Snellen's chart, retinoscopy and autorefraction

### Ophthalmoscopy

- To describe the anatomic landmarks of the fundus
- To know the basic principle of examination with direct ophthalmoscopy and differences from indirect ophthalmoscopy
- To describe the ways of examination of direct ophthalmoscopy with exposure and practice in Ophthalmology clinic

### Red Eye

- To assess and list the causes of red eye
- To differentiate between different causes of red eye
- To discriminate urgent causes that need immediate referral
- To demonstrate the technique of lid eversion and use of fluorescein stain to examine the ocular surface

### Ocular Motility and Strabismus

- To outline the action of extraocular muscles and associated eye movements
- To assess ocular misalignment, classify its causes and describe the ways of examination of ocular motility and ocular misalignment
- To differentiate between common types of strabismus and interpret the findings from history and examination
- To demonstrate and practice the steps of examination of ocular alignment and motility

### Loss of Vision

- To list and evaluate the causes of sudden and gradual loss of vision with interpretation of findings
- To state the alarming symptoms and signs that require immediate attention and referral
- To observe common machines used to assess the eye in patients with loss of vision like the fundus camera, OCT machine and B-scan

## Pupil

- To elaborate the anatomy of pupillary reflexes and describe the steps of pupillary examination
- To identify the abnormalities affecting the pupil and interpret the findings
- To demonstrate and practice the steps of examination of the pupil

## Visual Field

- To elaborate the anatomy of visual pathway and state the methods of visual field assessment
- To identify, describe, analyze and understand the anatomic basis of common visual field defects and interpret visual field printout in a simple manner
- To demonstrate and practice the steps of examination of visual field by confrontation method

## IOP measurement and Glaucoma

- To describe methods and principles of intraocular pressure measurement with exposure to the instruments in the ophthalmology clinic

## Exposure to Eye Surgeries in the Operating theatre

- To observe common ophthalmic surgeries in operating theatre or videos (e.g. cataract surgery, strabismus surgery, evisceration and laser procedures)

## Method of assessment of Clinical Ophthalmology Course

Assessment of students completed the ophthalmology course include submission of the log book with the requirements signed by appropriate member of the staff and passing the slide examination.

Type of examination	Method	Degrees
Slide Examination	Slides with short history and photo showing clinical findings. 10 slides each is presented for 1:30 to 1:45 minute. The students should be able to: <ul style="list-style-type: none"><li>• Identify the clinical signs</li><li>• Solve problems</li><li>• Discriminate between certain diseases</li><li>• Provide an outline of management</li></ul>	15 %

The examination should take place on the last day of the clinical ophthalmology course.

## Objectives of Large Group Teaching

### Anatomy of the Eye and Visual Pathway

- To describe the ocular anatomy and identify different ocular regions
- To describe the physiology and function of ocular structures
- To describe the visual pathway and illustrate the visual reflexes

### Refractive Errors

- To identify the optical principles of refraction of the eye
- To define accommodation, amplitude of accommodation and presbyopia
- To list, classify and differentiate between the types of refractive errors of the eye
- To describe the clinical features and outline the treatment of different refractive errors

### Disorders of the Conjunctiva

- To outline the symptoms and signs of common conjunctival disorders and recognize their possible causes
- To describe clinical features and management, list the causes and discriminate between different types of conjunctivitis
- To describe the clinical features and management of common conjunctival degenerations

### Disorders of the Cornea

- To outline the signs of common corneal diseases and recognize their possible causes
- To recognize the symptoms and signs, discriminate between and outline the management of common corneal infectious diseases.
- To understand the use of steroid in certain infectious corneal diseases and the recognize the contraindications in others
- To describe the clinical features, outline and select the appropriate treatment modality of keratoconus
- To describe the different types of corneal grafting procedures and identify indications of each

### Strabismus

- To describe the anatomy and functions of extraocular muscles
- To know the classification of strabismus and discriminate between different types based on history and examination
- To describe the clinical features of common types of strabismus and select the treatment modality according to the type
- To discriminate squint from pseudosquint and identify the conditions presenting with pseudosquint

### Glaucoma

- To define and discriminate glaucoma from ocular hypertension
- To describe the clinical features of different types of glaucoma including the optic disc changes and identify the features of each type

- To identify visual field defect in glaucoma
- To describe different therapies for glaucoma and understand the importance of patient's compliance
- To describe the clinical features and management of congenital glaucoma

### **Sclera and Episclera**

- To describe the clinical features, causes and management of episcleritis and scleritis
- To discriminate between scleritis and episcleritis
- To identify the features of posterior scleritis

### **Uveitis**

- To define, classify, describe the clinical features, treatment modalities and list the complications of different types of uveitis
- To discriminate between different types of uveitis based on history and clinical findings
- To list the investigations required in selected cases

### **Diseases of the Lens**

- To describe the clinical features, causes, complications and treatment of common lenticular diseases
- To select the appropriate treatment option in different lens disease and describe the basic principles of surgical options

### **Lacrimal Apparatus**

- To describe the composition and function of tears and identify the physiology of tear drainage
- To describe the clinical features, causes and treatment options of diseases of lacrimal glands and lacrimal drainage portion
- To know how to select the appropriate treatment option in different diseases of lacrimal drainage system
- To describe the clinical features, cause and treatment of dry eye

### **Eyelids**

- To describe congenital and acquired anomalies of the eyelids
- To discriminate between entropion and ectropion and list their causes
- To differentiate, list the causes and select the treatment option of blepharoptosis
- To describe and list the causes of different eyelash disorders
- To describe the clinical features and treatment of benign eyelid nodules
- To describe the clinical feature, complications and treatment of blepharitis

### **Neuro-ophthalmology**

- To identify the signs of optic nerve dysfunction and describe the investigations in selected cases
- To list the causes, identify the signs of and discriminate between optic neuritis, optic atrophy and disc swelling and how to differentiate
- To outline the anatomy of pupil reflex and oculosympathetic pathways and common abnormalities



## **Retina**

- To define, list the causes, describe the clinical feature and discriminate between
- different types of retinal detachments with outline of treatment
- To know the pathogenesis and classify or stage diabetic retinopathy based on identification of fundus clinical findings
- To formulate a plan of management of diabetic retinopathy and identify the need for immediate referral
- To define, describe the pathogenesis, and state the risk factors, clinical features and treatment of age related macular degeneration
- To describe and outline the management of common retinal vascular diseases

## **Orbit**

- To describe the clinical features of common orbital diseases
- To differentiate between different orbital inflammatory diseases and select treatment modalities for each
- To identify orbital diseases that require immediate attention and urgent intervention by specialist
- To discriminate between and state the indications of evisceration, enucleation and exenteration

## **Trauma**

- To study different mechanisms by which ocular trauma is sustained
- To identify important aspects in history and examination in patient with ocular trauma, select the necessary investigations and detect the cases that require immediate attention and intervention

## **Tumours in Ophthalmology**

- To describe common tumors encountered in general ophthalmology practice.
- To differentiate between simple benign lesions and more serious pathologies.
- To understand the importance of identifying red flags for vision and life threatening tumors.
- To understand the importance of early referral of suspected cases of ocular malignancies, especially retinoblastoma.
- To describe the principles of diagnosis and treatment of different ocular and adnexial tumors.

## **Laser in Ophthalmology**

- To define and state the physical features of laser
- To identify the effect of laser on ocular tissues
- To differentiate between different types of laser-ocular tissue interaction and identify the clinical applications

## Syllabus of Ophthalmology Large Group Teaching

Title	Numbers of hours
<b>Anatomy of the eye and visual pathway and basic visual tests</b>	2 hours
<b>Refractive Errors</b> <ol style="list-style-type: none"> <li>1- Emmetropia (normal refraction)</li> <li>2- Hypermetropia</li> <li>3- Myopia</li> <li>4- Astigmatism</li> </ol>	2 hours
<b>Disorders of the Conjunctiva</b> <ol style="list-style-type: none"> <li>1- Applied anatomy</li> <li>2- Clinical Evaluation of conjunctival inflammation</li> <li>3- Bacterial Conjunctivitis</li> <li>4- Viral Conjunctivitis</li> <li>5- Chlamydial Conjunctivitis</li> <li>6- Allergic conjunctivitis</li> <li>7- Conjunctival Degenerations</li> </ol>	2 hours
<b>The cornea</b> <ol style="list-style-type: none"> <li>1- macro and micro Anatomy</li> <li>2- Signs of corneal diseases</li> <li>3- Microbial keratitis</li> <li>4- Keratoconus</li> <li>5- Keratoplasty (Corneal transplantation, Grafting)</li> </ol>	2 hours
<b>Eyelids</b> <ol style="list-style-type: none"> <li>1- Anatomy</li> <li>2- Congenital anomalies of eyelids</li> <li>3- Abnormalities in shape and position (entropion, ectropion and ptosis)</li> <li>4- Benign nodules and cysts (stye, chalazion)</li> <li>5- Chronic Blepharitis</li> </ol>	2 hours
<b>The lacrimal apparatus</b> <ol style="list-style-type: none"> <li>1- The tear film</li> <li>2- Diseases of the lacrimal passages</li> <li>3- Lacrimal drainage obstruction</li> <li>4- Dry eye (Keratoconjunctivitis Sicca "KCS")</li> </ol>	1 hour
<b>Sclera and Episclera</b> <ol style="list-style-type: none"> <li>1- Applied anatomy:</li> <li>2- Episcleritis</li> <li>3- Scleritis</li> </ol>	1 hour
<b>Uveitis</b> <ol style="list-style-type: none"> <li>1- Anatomical Classification</li> <li>2- Clinical classification</li> </ol>	1 hour

<ul style="list-style-type: none"> <li>3- Aetiological classification</li> <li>4- Anterior uveitis</li> <li>5- Intermediate Uveitis</li> <li>6- Posterior uveitis</li> <li>7- Special investigations for patients with uveitis:</li> <li>8- treatment</li> </ul>	
<p><b>Lens</b></p> <ul style="list-style-type: none"> <li>1- Anatomy of the lens</li> <li>2- Cataract</li> <li>3- Aphakia</li> <li>4- Congenital cataract</li> <li>5- Ectopia lentis</li> </ul>	2 hour
<p><b>Glaucoma</b></p> <ul style="list-style-type: none"> <li>1- Anatomy of the angle of anterior chamber</li> <li>2- Physiology of aqueous production</li> <li>3- Ocular hypertension</li> <li>4- Glaucoma</li> <li>5- The optic nerve head</li> <li>6- Primary Open Angle Glaucoma (POAG)</li> <li>7- Normal tension glaucoma (NTG)</li> <li>8- Primary Angle Closure Glaucoma (PACG)</li> <li>9- Congenital glaucomas</li> <li>10- Secondary glaucomas</li> </ul>	2 hours
<p><b>The Orbit</b></p> <ul style="list-style-type: none"> <li>1- The anatomy of the orbit</li> <li>2- Clinical signs of orbital disease</li> <li>3- Orbital infection</li> <li>4- Orbital inflammatory diseases</li> <li>5- Thyroid eye diseases</li> </ul>	2 hours
<p><b>Strabismus (Squint)</b></p> <ul style="list-style-type: none"> <li>1- Anatomy of extraocular muscles</li> <li>2- Comitant squint</li> <li>3- Management of Accommodative esotropia</li> <li>4- Essential infantile esotropia (congenital)</li> <li>5- Exotropia (Divergent squint)</li> <li>6- Paralytic squint (Incomitant squint)</li> <li>7- Pseudosquint</li> </ul>	2 hours
<p><b>The retina</b></p> <ul style="list-style-type: none"> <li>1- Anatomy</li> <li>2- Applied anatomy</li> <li>3- Retinal Detachment (RD)</li> <li>4- Diabetic Retinopathy</li> <li>5- Age related macular degeneration</li> <li>6- Retinal vascular occlusive diseases</li> </ul>	3 hours

<p><b>Neuro-ophthalmology</b></p> <ol style="list-style-type: none"> <li>1- Applied anatomy of visual pathway</li> <li>2- VF defects associated with visual pathway diseases</li> <li>3- Signs of optic nerve dysfunction</li> <li>4- Optic neuritis</li> <li>5- Optic atrophy</li> <li>6- Papilloedema</li> <li>7- Abnormal pupillary reaction</li> <li>8- Near reflex</li> <li>9- Sympathetic supply</li> <li>10- Ischaemic optic neuropathy</li> </ol>	2 hour
<p><b>Laser in Ophthalmology</b></p> <ol style="list-style-type: none"> <li>1- Physics of laser</li> <li>2- Criteria of LASER</li> <li>3- Laser parameters</li> <li>4- Laser tissue interaction</li> <li>5- Types of laser</li> <li>6- Uses of laser in ophthalmology</li> </ol>	1 hour
<p><b>Trauma</b></p> <ol style="list-style-type: none"> <li>1- Eyelid trauma</li> <li>2- Orbital fractures</li> <li>3- Orbital haemorrhage</li> <li>4- Trauma to the globe</li> <li>5- Blunt trauma</li> <li>6- Penetrating trauma</li> <li>7- Intraocular foreign bodies</li> <li>8- Enucleation (excision of the eyeball)</li> <li>9- Sympathetic ophthalmitis</li> <li>10- Chemical burn</li> </ol>	1 hour
<p><b>Tumours in Ophthalmology</b></p> <ol style="list-style-type: none"> <li>1- Tumours of the eyelid</li> <li>2- Tumours of the orbit</li> <li>3- Conjunctival tumours</li> <li>4- Intraocular tumours</li> </ol>	2 hours

**Total 30 hours**

## Methods of assessment of Large Group Teaching

Type of examination	Method	Degree
Quizzes during the lectures as CPT including participation during the lectures	Problem solving, MCQ, matching	15%
Final summative examination	MCQs – 100 stems of 5 choices	70%

The final summative examination takes place at the end of the semester. It is an MCQ examination with 100 stems of 5 choices. If the student fails, he/she can re-sit the examination in September (2<sup>nd</sup> attempt examinations).

# THE OPHTHALMOLOGY EXAMINATION BLUEPRINT

## The End Summative Examination

The End Summative Examination of ophthalmology aims to evaluate knowledge, critical thinking and problem solving abilities.

The questions test the following:

1. Knowledge which includes understanding pathophysiology, risk factors, causes and clinical features of diseases and apply basic science knowledge
2. Making a diagnosis
3. Recommending a treatment option
4. Determining prognosis
5. Selecting a test or investigation in certain clinical scenarios

60-70% of questions test knowledge and 30-40 % test critical thinking and problem solving abilities.

The examination consists of 100 MCQ questions administered over a 3 hour session. Each question has 5 potential responses in alphabetical order. The student has to choose the most appropriate or correct answer. A positive mark is given to a correct answer and no mark is given to wrong answer. The questions cover the following topics with the weight of each topic outlined in the table.

	Topic	No. of Lectures	Weight	%
1	Introduction, Anatomy of the Eye & Visual Pathway	2	4	5%
2	Refractive Errors	2	5	6%
3	Disorders of the Conjunctiva	2	5	7%
4	Disorders of the Cornea	2	5	7%
5	Strabismus	2	5	7%
6	Uveitis	1	3	5%
7	Sclera and Episclera	1	3	5%
8	Diseases of the Lens	2	4	6%
9	The Lacrimal Apparatus	1	3	5%
10	The Eyelids	2	4	6%
11	Neuro-ophthalmology	2	4	6%

12	Glaucoma	2	5	6%
13	The Orbit	2	5	7%
14	The Retina	3	6	9%
15	Trauma	2	4	5%
16	Laser in Ophthalmology	1	2	3%
17	Tumours in Ophthalmology	1	3	5%
	<b>Total</b>	30	70	100.00%

End Summative Examination constitutes 70% of overall mark.

### **The Continuous Progress Test CPT and electronic slide examination**

It comprises student's performance in constructive quizzes during the Large Group Teaching lectures in addition to their participation by interactive teaching and their response to questions during the lectures. The answer is discussed immediately after the quiz so the students can have a feedback of their performance. The quiz is usually a problem solving question, matching or MCQ intended to test student's knowledge and critical thinking of previously presented lecture(s). There is no prior notification of the quiz.

The Electronic slide examination consists of 10 slides that cover certain number of large group teaching lectures. The topics and appointment of this exam should be notified to the students before 1 week from the exam.

The CPT constitutes 15% of overall mark

### **The Practical Examination**

A practical examination in a form of 10 slides presented with questions to assess the student's knowledge and problem solving, in addition to diagnostic abilities regarding common ophthalmic disorders.

The practical examination constitutes 15% of overall mark

## Recommended Resources:

There are uploaded lectures and tutorial handouts to cover the learning objectives in the official college interactive website [inle.uobaghdad.edu.iq](http://inle.uobaghdad.edu.iq)

For further information, the students are advised to review the following resources:

1. Kanski Clinical Ophthalmology
2. Oxford Handbook of Ophthalmology (Oxford Medical Handbooks)
3. Moorfields Manual of Ophthalmology by Timothy L Jackson
4. [www.ophthalmologytraining.com](http://www.ophthalmologytraining.com) which is an animated online website to teach the basics of ophthalmology.