

**STATE OF LIBYA
MINISTRY OF HIGHER EDUCATION**

UNIVERSITY OF BENGHAZI

FACULTY OF MEDICINE



Master of Science in Ophthalmology and Ophthalmic Surgery

Program specifications 2018

Basic information

Course title: MSc Ophthalmology.

Course code: OPH 0212

Course duration: Two years.

Department offering the course: Ophthalmology department.

Program on which this course is given: Master of Science in
Ophthalmology and Ophthalmic Surgery

Total credit points: 30

1 credit hour = 15 hours theoretical, 1 credit hour = 30 hours practical

1 credit hour = 20 hours thesis

Academic year: 2018

Date of specifications /revision: 2017.

Date of approval by departmental/faculty council: 31/10 /2017

Teaching language: English

Program course coordinators: Samar A Bukhatwa (Assistant professor)
Naeima M. Elzlitni (Assistant professor)

Head of department & course director: Prof. Abdelsalam A. Geilani

Aims of the course

The aim of MSc course in Ophthalmology is to produce a competent ophthalmologist who:

- Has scientific knowledge essential for the of practice of ophthalmology according to the international standards.
- Has acquired skills in effectively communicating with the patient, family and the Community.
- Develop a personal program of self-study and professional growth with guidance from the teaching staff.
- Is oriented to the basics of scientific medical research.
- Can maintain ethical principles related to ophthalmology

Intended learning outcomes (ILOs)

a) Knowledge and Understanding

By the end of the program the candidate should;

- a1 Recognize ophthalmic basic science (anatomy of the eye and nervous system, physiology of the eye, microbiology, pathology of the eye and ophthalmic applied optics).
- a2 Take detailed history, describe full ocular examination including anterior and posterior segment of eye and neuro ophthalmology and make clinical diagnosis.
- a3 Recognize clinical diagnosis of diseases affecting the eye and the adnexa.
- a4 Mention the principles and fundamentals of ethics and legal aspects of professional practice in the field of ophthalmology.

- a5 Describe surgical skills for basic ophthalmic procedures.
- a6 Understand the basic investigations to be ordered to help in reaching the diagnosis (laboratory, ophthalmic investigations).
- a7 Recognize the principles, basics and ethics of scientific research and Function as a productive member of a team engaged in eye care, research and education

b. Intellectual skills:

By the end of the program the candidate should be able to

- b1 Analyze symptoms and signs and to construct differential diagnosis.
- b2 Prioritize the different guidelines to individual situations.
- b3 Interpret the results of different investigations.
- b4 Compose treatment plan medically or surgically to improve performance in the field of ophthalmology
- b5 Plan and advise measures for the prevention of eye diseases and visual disability
- b6 Conduct a research study and /or write a scientific study on a research problem.

c. Professional and practical skills:

By the end of the program the candidate should be able to;

- c1 Diagnose ocular diseases on the analysis of history, ocular examination and investigative work up.
- c2 Write a treatment prescription for a given medical problem.
- c3 Master the different emergency and routine procedures necessary in the general ophthalmic specialty.

- c4 Carryout common surgical procedures independently.
- c5 Assess patients needing hospitalization, and surgical intervention.

d. General and transferable skills:

By the end of the program the candidate should be able to;

- d1 Give health education messages to patients, families and communities;
- d2 Facilitate learning of medical/nursing students, practicing physicians, paramedical health workers and other providers as a teacher-trainer.
- d3 Work in a team, and team's leadership in various professional contexts.
- d4 Use computer skills efficiently in research, data base filing and preparation of presentation.
- d5 Learn himself continuously.

Program structure: Total credit points

Syllabus

Theory

	Course	No. of credit hours for Lectures	No. of credit hours for Practical	Total no. of Credit hours
First part	OPH.0212.A.	1	-	1
	OPH.0212.B.	1	-	1
	OPH.0212.C.	1	0.5	1.5
	OPH .0212.D.	1	-	1
	OPH .0212.E.	1	-	1
Second part	OPH .0212.F.	1	0.5	1.5
	OPH .0212.G.	1	-	1
	OPH .0212.H.	1	1	2
	OPH .0212.I.	4	3	7
	OPH .0212.J.	4	3	7
Thesis	OPH .0212.K.			6
		16	8	30

1 credit hour = 15 hour theoretical 1 credit hour = 30 hours practical

1 credit hour = 20 hours thesis.

Evaluation of Program's intended learning outcomes (ILOs):

Assessment methods:

1. Written exam for assessment of knowledge and intellectual skills.
4. MCQ exam for continuous assessment of knowledge and intellectual skills.
2. Clinical exam for assessment of intellectual and practical skills
3. Oral exam for assessment of knowledge and intellectual skills.

Weighting of assessments

Final written examination 40%

Oral examination 30%

Practical examination 30%

Total 100%

The success rating for any course is calculated according to the following table:

Mark	Grade
85-100%	Excellent
75 to < 85%	Very good
65 to < 75%	Good
50 to < 65 %	Poor
Less than 50%	Very poor

Teaching Program

Lectures: are given for all students in lecture hall.

Clinical round: Discussion of clinical cases, eye symptoms and signs.

Self-learning method through Seminar presentations including detailed topics covering all aspects of ophthalmology.

Case discussions so as to be expert in clinical examination, reach a diagnosis and then plan for appropriate and required management.

All the students should have a surgical and medical training in ophthalmology for a period of 2 years.

Emergency casualty, eye OPD, ward and OT duties shall be mandatory for all PG students and has to be taken up on rotation as per monthly roster.

Thesis

Every student registered as post graduate shall carry out work on an assigned research project under the guidance of a recognized post graduate teacher, the result of which shall be written up and submitted in the form of a thesis. The department and the ethical committees must approve the protocol of the research.

The thesis is supervised by one or more senior staff members and may include other specialties according to the nature of the research.

List of references

Course notes
Ppt from the lecturers.

Essential books (text books)

Gray's anatomy for student.
Langman's medical embryology "Sadler"
Clinical anatomy " Snell"
Duke-Elder's practice of refraction.
Kanski clinical ophthalmology textbook.
Duane's ophthalmology.
Ophthalmology, Yanoff & Duker.
Periodicals, Web sites, etc
American academy website
ICO website

Resources / Facilities required for teaching and learning to achieve the above ILOs:

Data show.

Computers

Internet club.

Program admission requirements:

General requirements:

By laws regulating post graduate Studies in Benghazi university.

Minimally accepted attendance is 75%.

Program-Intended learning outcomes Matrix

	Course title	Knowledge and understanding	Intellectual skills	Professional skills	General and transferable skills
1	Embryology, Histology and Anatomy.	a1	-	-	-
2	Ocular physiology	a1	b1,2	-	-
3	Optics of the eye	a1		c1,2	d2
	General surgery		b1-3	c5	d1-5
5	Basic of internal medicine related to the eye & neurology	a2	b1-3		d1-5
6	Ocular Pathology	a1	b1	c1	d3
7	Microbiology	a1	b1		d1-3
8	Neuro –ophthalmology	a2	b1-5	c1-5	d1-5
9	Medical ophthalmology	a2,3,4	b1-5	c1-5	d1-5
10	Ophthalmic Surgery	a4,5	b4	c4,5	d2-5
11	Thesis	a7	b6	-	d3,4

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH.0212.A.1	Embryology& Development. (1 ST part MSC)	1
	A.1.1.	Embryology of Outer coat: Cornea, Limbus. & Sclera.	
	A.1.2.	Embryology of Middle coat: Choroid, Ciliary body& Iris.	
	A.1.3.	Embryology of Inner coat: Retina.	
	A.1.4.	Embryology of Contents: Lens & Vitreous.	
	OPH.0212.A.2.	Histology & cytology:	
	A.2.1.	Histology of cornea and sclera.	
	A.2.2.	Histology of the lens and zonule.	
	A.2.3.	Histology of uveal tissue.	
	A.2.4.	Histology of the retina.	
	OPH.0212.A.3.	Ocular Anatomy.	
	A.3.1.	Anatomy of Eyelids and lid muscles.	
	A.3.2.	Anatomy of Conjunctiva.	
	A.3.3.	Anatomy of Lacrimal gland and lacrimal drainage system.	
	A.3.4.	Anatomy of Orbital septum and palpebral ligaments.	
	A.3.5	Anatomy of extra ocular muscles.	
	A.3.6.	Anatomy of Oculomotor,	

		Trochlear, Trigeminal, Abducent, Facial nerves.	
	A.3.7.	Anatomy of Orbit walls and fissures	
	A.3.8.	Anatomy of Arterial supply, Venous Drainage :(Ophthalmic artery & branches, Ophthalmic vein & tributaries) & Lymph drainage.	
	A.3.9.	Anatomy of visual pathway.	
	A.3.10.	Autonomic nervous system: Sympathetic & Parasympathetic.	
	A.3.11.	Anatomy of Head and neck.	
	A.3.12.	Neuro Anatomy.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH.0212.B.	Ocular physiology.(1ST part MSC)	1
	B.1.	Protective mechanism : Eyelids, Lacrimal apparatus, Cornea.	
	B.2.	The tear film.	
	B.3.	Physiology of the cornea.	
	B.4.	Ocular circulation	
	B.5.	Aqueous humour : formation, Circulation, Function, Drainage,	
	B.6.	Intra Ocular Pressure. : Factors influencing, pharmacology, measurement.	

	B.7.	Vitreous body.	
	B.8.	Lens metabolism.	
	B.9.	Iris & Pupil: Reflexes: light, near, pharmacology.	
	B.10.	Light ;(Nature ,properties), photochemistry of vision & adaptation:(light, dark)	
	B.11.	Physiological functions of retinal pigment epithelium	
	B.12.	Colour vision, Theories, Colour blindness.	
	B.13.	Electrical phenomenon of the eye: ERG, EOG, VEP.	
	B.14.	Visual acuity.	
	B.15.	Entoptic phenomenon.	
	B.16.	Extra ocular muscle, supra nuclear control, Nystagmus.	
	B.17.	Binocular vision.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH.0212.C.	Optics of the eye. (1ST part MSC)	1.5
	C.1.	Physical. Nature of light, properties of light.	
	OPH.0212.C.2.	Geometric.	
	C.2.1.	Reflection: plane, spherical mirrors.	

	C.2.2.	Refraction: Plane, convex lens, concave lens, prisms, cylindrical lenses.	
	C.2.3.	Toric refraction by the eye (Schematic, reduced eye).	
	OPH.0212.C.3.	Clinical.	
	C.3.1.	Aberrations.	
	C.3.2.	Ametropias: Hyperopia, Myopia, Astigmatism, Aphakia, Anisometropia, aniseikonia.	
	C.3.3.	Accommodation (presbyopia): Excess, spasm, insufficiency, paralysis.	
	C.3.4.	Binocular Muscle Coordination: convergence.	
	C.3.5.	Binocular Muscle Anomalies: Heterophoria, Heterotropia.	
	C.3.6.	Convergence: excess, insufficiency.	
	C.3.7.	Visual acuity: far, Near, measurement.	
	C.3.8.	Retinoscopy.	
	C.3.9.	Ophthalmoscopy: Direct, indirect.	
	C.3.10.	Verification of refraction.	
	OPH.0212.C.4.	Appliances: Spectacles, Contact lenses, Intra ocular lenses, Low vision aids.	
	OPH.0212.C.5.	Instruments:	
	C.5.1.	Microscopy , operating microscope , Slit Lamp , Fundus	

		Camera Refractometers , Keratometers , Orthoptic.	
	C.5.2.	Laser.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.D.	General surgery. (1ST part MSC)	1
	OPH .0212.D.1.	Wounds.	
	OPH .0212.D.2.	Burns.	
	OPH .0212.D.3.	Shock.	
	OPH .0212.D.4.	Haemorrhage.	
	OPH .0212.D.5.	Infection.	
	OPH .0212.D.6.	Ulceration.	
	OPH .0212.D.7.	Gangrene.	
	OPH .0212.D.8.	Antimicrobial.	
	OPH .0212.D.9.	Cysts.	
	OPH .0212.D.10.	Tumors.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.E.	Basic of internal medicine related to the eye & neurology. (1ST part MSC)	1
	OPH .0212.E.1.	Neurology Intracranial Tumors, Multiple Sclerosis, Idiopathic Intracranial Hypertension, Pituitary Tumor Cerebrovascular Disease, Myopathy – Myasthenia Gravis.	
	OPH .0212.E.2.	Cardiovascular diseases: Hypertension, Coronary Artery Disease, Sudden Cardiac Death And Cardiopulmonary Cerebral resuscitation.	
	OPH .0212.E.3.	Endocrine and metabolic diseases: Pituitary – Thyroid – Parathyroid – Suprarenal – Thymus- Glucocorticoids Therapy, Diabetes Mellitus I & II.	
	OPH .0212.E.4.	Hematology: Anemia Hyper Viscosity Syndrome, Bleeding Disorders And Thrombophilia	
	OPH .0212.E.5.	Collagen diseases: Systemic lupus erythematosus And ANCA	

		positive Vasculitis, Dermatomyositis, Behçet Disease, Sjogren's syndrome.	
	OPH .0212.E.6.	Diseases of respiratory system: Bronchial Asthma, Pneumonia, Respiratory Failure, Sarcoidosis, Tuberculosis.	
	OPH .0212.E.7.	Diseases of liver: Chronic Hepatitis B & C, Liver cirrhosis.	
	OPH .0212.E.8.	Uraemia.	
	OPH .0212.E.9.	HIV Infection.	
	OPH .0212.E.10.	Infection: Hospital Acquired Infection, infections control And Universal precautions, Principal of Antibiotic therapy.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.F.	Ocular Pathology. (2 nd part MSC)	1.5
	OPH .0212.F.1.	Adnexa:	
	F.1.1.	Eye lids: Skin, glands, congenital, developmental, Aging, Inflammatory, Cysts, Vascular lesions, Benign tumors, Premalignant, malignant.	
	F.1.2.	Conjunctiva: Congenital, Vascular, Inflammatory (Acute, chronic), allergic, Degenerations, cysts, tumors (Benign & malignant), Xerosis.	
	F.1.3.	Orbit, lacrimal : Thyroid ophthalmopathy, Pseudotumour, Granuloma Tumors: lymphoid, vascular, muscular, lacrimal gland.	
	OPH .0212.F.2.	Ocular:	

	F.2.1.	Cornea: Congenital, Inflammatory, Ulcers, Pannus, keratoconus, Dystrophies.	
	F.2.2.	Sclera: Inflammatory.	
	F.2.3.	Uvea: Choroid, Ciliary body, Iris (Malignant, benign), Metastases Retinoblastoma & Leucocoria.	
	F.2.4.	Lens: Congenital, Cataract, Intra Ocular Lens implantation.	
	F.2.5.	Glaucomas.	
	F.2.6.	Vitreous: Posterior vitreous detachment, opacities & Haemorrhage.	
	F.2.7.	Retina : Haemorrhage, exudates, Retinal artery occlusion, Retinal vein occlusion, Retinopathies, Retinal pigment, degeneration, Retinal detachment.	
	F.2.8.	Macula: Holes, Dystrophies & Age related macular degeneration.	
	F.2.9.	Optic nerve: Congenital Anomalies,	

		Papilloedema, Optic neuritis, Optic atrophy & Tumors.	
	F.2.10.	Eye injuries.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.G.	Microbiology. (2 nd part MSC)	1
	OPH .0212.G.1.	Sterilization and disinfection.	
	OPH .0212.G.2.	Culture and sensitivity tests.	
	OPH .0212.G.3.	Drug action on micro-organisms.	
	OPH .0212.G.4.	Diseases transmitted by surgery.	
	OPH .0212.G.5.	Infectious diseases of the eye.	
	OPH .0212.G.6.	Immunology:	
	G.6.1.	Cell-Mediated.	
	G.6.2.	Humoral Immune Response.	
	G.6.3.	Hypersensitivity Reaction.	

	G.6.4.	Tumor immunology.	
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Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.H.	Neuro –ophthalmology. (2nd part MSC)	2
	OPH .0212.H.1.	Congenital optic disc anomalies.	
	OPH .0212.H.2.	Acquired optic nerve disorder.	
	H.2.1.	Optic neuritis.	
	H.2.2.	Anterior ischaemic optic neuropathies.	
	H.2.3.	Diabetic papillopathy.	
	H.2.4.	Toxic Optic Neuropathy.	
	H.2.5.	Leber's Optic Neuropathies	
	H.2.6.	Papilledema.	
	H.2.7.	Optic Nerve Tumors.	
	OPH .0212.H.3.	Chiasmal Disorders.	
	OPH .0212.H.4.	Optic Tract Disorders.	
	OPH .0212.H.5.	Disorder of the optic radiation and visual cortex.	
	OPH .0212.H.6.	Ocular motor nerves:	
	H.6.1.	Oculomotor nerve palsy.	

	H.6.2.	Trochlear Nerve Disorder.	
	H.6.3.	Abducent nerve.	
	OPH .0212.H.7.	Supranuclear disorders of eye movement.	
	OPH .0212.H.8.	Carotid Cavernous Fistula.	
	OPH .0212.H.9.	Anomalies Of The Pupil	
	OPH .0212.H.10	Nystagmus.	
	OPH .0212.H.11.	Ocular myopathies- Myasthenia Graves.	
	OPH .0212.H.12.	Ophthalmic Manifestations Of Brain Tumors.	
	OPH .0212.H.13.	Ophthalmic manifestations of vascular diseases of the brain.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.I.	Medical ophthalmology. (2 nd part MSC)	7
	OPH .0212.I.1.	Diseases of eyelids.	
	OPH .0212.I.2.	Lacrimal drainage system.	
	OPH .0212.I.3.	The dry eye.	
	OPH .0212.I.4.	Conjunctiva.	
	OPH .0212.I.5.	Cornea.	
	OPH .0212.I.6.	Corneal and refractive surgery.	
	OPH .0212.I.7.	Episclera and sclera.	
	OPH .0212.I.8.	Lens.	

	OPH .0212.I.9.	Glaucoma.	
	OPH .0212.I.10.	Uveitis.	
	OPH .0212.I.11.	Intraocular tumors.	
	OPH .0212.I.12.	Retinal detachment.	
	OPH .0212.I.13.	Acquired macular disorders.	
	OPH .0212.I.14.	Retinal vascular disease.	
	OPH .0212.I.15.	Hereditary fundus dystrophies.	
	OPH .0212.I.16.	Strabismus.	
	OPH .0212.I.17.	Orbit.	
	OPH .0212.I.18.	Trauma.	
	OPH .0212.I.19.	Systemic diseases.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.J.	Ophthalmic Surgery. (2nd part MSC)	7
	OPH .0212.J.1.	General considerations.	
	OPH .0212.J.2.	Cataract.	
	OPH .0212.J.3.	Cornea.	
	OPH .0212.J.4.	Glaucoma.	

	OPH .0212.J.5.	Plastic surgery.	
	OPH .0212.J.6.	Strabismus and pediatric ophthalmic surgery.	
	OPH .0212.J.7.	Retina.	

Department code	Course no	Course title	Credit hrs.
OPH 0212	OPH .0212.K.	Thesis.	6

Total credit points: 30

1 credit hour = 15 hours theoretical, 1 credit hour = 30 hours practical

1 credit hour = 20 hours thesis