

الكلية: الصيدلة والعلوم الطبية
التخصص: علم البصريات
وصف المواد الدراسية باللغة الانجليزية

0111101 Mathematics (1) {3} [3-3]

Introduction to calculus; the rate of change of a function; limits; derivatives of algebraic functions and their applications; integration; application of the definite integral.

Prerequisite: None

0111201 General Physics {3} [3-3]

Introduction to physics; measurement and standards; physical quantities; vectors; addition and multiplication of vectors; motion in straight line: displacement, velocity, acceleration, finding the motion of an object, free fall, and vertical jumping; motion in two dimensions; projectile in biomechanics; Newton's laws: static C.G., levers in the body; muscles and jaws of animals; collisions.

Prerequisite: None

0311201 Computer Skills (Health) {3} [3-3]

Topics in modern information technology: emails and internet navigation; social networks; image and video editing; context management systems; useful software applications on the cloud.

Prerequisite: 0311200 Remedial Computer Skills

0921711 General Chemistry {3} [3-3]

This course gives the students the basic information about matter classification and properties; elements and atoms; ionic and molecular compounds; measurements; chemical reactions; electronic structure; properties of gases; intermolecular forces; concentrators; acids and bases; kinetics; energy and thermodynamics.

Prerequisite: None

0921117 Anatomy & Histology {3} [3-3]

Introduction to anatomy & histology; theoretical descriptive studies of the human body; study of various systems: molecular level, cellular, tissue, organs, body system levels; microscopic anatomy: cells, tissues, organs, and organ systems.

Prerequisite: 0921713 General Biology

0921713 General Biology {3} [3-3]

This course introduces basic concepts of biology including cell structure and function; cell biochemistry and metabolism; molecular biology of the cell; and biodiversity.

Prerequisite: None

0913330 Pathology {3} [3-3]

Introduction; fundamental principles of pathophysiology; cell and tissue injury; acute and chronic inflammation; tissue regeneration and repair; disease of immune system; general pathology of infectious diseases; neoplasia and hemodynamic disturbances.

Prerequisite: 0921117 Anatomy & Histology

0941101 Introduction to Optometry {1} [1-1]

Introduction to the history of optometry; characteristics of the profession; legal status and scope of practice; fundamental terminology; basic procedures and concepts.

Prerequisite: None

0941601 Optical Physics {2} [2-2]

Review of math concepts; waves; Maxwell's equations; wave equation, plane-wave solution and properties; Lorentz oscillator model of optical properties; reflection and refraction, polarization optics; Jones calculus; Fraunhofer diffraction; prisms and lenses.

Prerequisite: 0111201 General Physics

0941602 Visual Physics {2} [2-2]

The eye as an optical instrument; ametropia and emmetropia; the refracting mechanism; the stimulus to accommodation; ocular transmission; visual acuity and visual performance; stray light in the eye; analysis of the retinal stimulus pattern.

Prerequisite: 0941601 Optical Physics

0941603 Visual Physics Lab {1} [1-2]

Refractive error demonstration: emmetropia, ametropia; practical applications on the use of optical instruments available for the optometrist: trial lens set, retinoscope, ophthalmoscope, lensmeter, keratometer.

Corequisite: 0941602 Visual Physics

0942101 Ocular Anatomy and Physiology {3} [3-3]

Extensive knowledge about the structure of the human eye and adnexa: anterior segment, the visual pathway, the posterior segment; detailed anatomy and physiology of each structure from theoretical and clinical perspectives; the vascular and nerve supply to various structures of the eye.

Prerequisite: 0921117 Anatomy & Histology

0942102 Ocular Anatomy and Physiology Lab {1} [1-2]

Anterior segment of the eye; posterior segment of the eye; ocular muscles; ocular adnexa; head and neck bones; head and neck muscles; learning through: videos, practical demonstration, eye models, slides.

Corequisite: 0942101 Ocular Anatomy and Physiology

0942201 Ophthalmic Lenses and Dispensing (1) {2} [2-2]

Basic optical principles; introduction to lenses and lenses materials; lens curvature; surface powers; forms of lenses; prisms characteristics; lens aberrations; frames types; frames mounting.

Prerequisite: 0941602 Visual Physics

0942202 Ophthalmic Lenses and Dispensing Lab (1) {1} [1-2]

Practical applications on: the choice of lenses materials, forms of lenses, prisms measurement, lens power measurement, frames selection, frames mounting.

Corequisite: 0942201 Ophthalmic Lenses and Dispensing (1)

0942203 Ophthalmic Lenses and Dispensing (2) {2} [2-2]

Modern lenses design; prismatic effect of lens decentration; oblique prismatic effect; prismatic effect of cylindrical lenses; specification of lens and frame sizes; lens decentration; bifocal and progressive lenses; lens tints.

Prerequisite: 0942201 Ophthalmic Lenses and Dispensing (1)

0942204 Ophthalmic Lenses and Dispensing Lab (2) {2} [2-4]

Practical applications on lenses design; lens decentration; prismatic effect of cylindrical lenses; specification of lenses and frame sizes; bifocal and progressive lenses.

Corequisite: 0942203 Ophthalmic Lenses and Dispensing (2)

0942301 Optometry Theory and Methods (1) {2} [2-2]

The course will teach the student how to perform basic visual examination techniques: case history, visual acuity, pinhole test, inter-pupillary distance, penlight examination of the external eye and anterior chamber, pupillary function, binocular vision tests.

Prerequisite: 0941602 Visual Physics

0942302 Optometry Theory and Methods Lab (1) {1} [1-2]

Students will practice how to perform basic visual examination techniques: case history, visual acuity, pinhole, inter-pupillary distance, penlight examination of the external eye and anterior chamber, pupillary function, binocular vision functions.

Corequisite: 0942301 Optometry Theory and Methods (1)

0942303 Optometry Theory and Methods (2) {2} [2-2]

Theoretical aspects of the following tests: Retinoscopy, keratometry, direct ophthalmoscopy, indirect ophthalmoscopy, slit-lamp biomicroscopy techniques, objective refraction, subjective refraction.

Prerequisite: 0942301 Optometry Theory and Methods (1)

0942304 Optometry Theory and Methods Lab (2) {1} [1-2]

Students will practice how to perform the following tests: retinoscopy, keratometry, direct ophthalmoscopy, slit-lamp biomicroscopy, objective refraction, subjective refraction.

Corequisite: 0942303 Optometry Theory and Methods (2)

0943101 Visual Perception {3} [3-3]

Introduction; physical aspects of vision; physiological aspects of vision; principles of psychophysical measurement; visual detection and discrimination; spatio-temporal resolution; color vision; binocular vision.

Prerequisite: 0942101 Ocular Anatomy and Physiology

0943201 Contact Lenses (1) {2} [2-2]

Soft lenses design; manufacturing techniques; fitting considerations of soft lenses for optimal physiological function; criteria for patient selection and training; contact lenses care systems.

Prerequisite: 0942101 Ocular Anatomy and Physiology

0943202 Contact Lenses Lab (1) {1} [1-2]

Hygiene in contact lenses handling; measurements selection of soft contact lenses, fitting of soft lenses; criteria for patient selection; patient training on use of contact lenses.

Corequisite: 0943201 Contact Lenses (1)

0943203 Contact Lenses (2) {2} [2-2]

History of rigid gas permeable contact lenses; hard lenses parameters; hard lenses materials; hard lenses design; patient selection criteria; hard lenses fitting; hard lenses care regime; review of keratoconus; review of irregular corneal surface conditions; corneal changes due to lenses wear; special lenses designs.

Prerequisite: 0943201 Contact Lenses (1)

0943204 Contact Lenses Lab (2) {1} [1-2]

Measurements selection of various types of rigid lenses; fitting of rigid contact lenses; evaluation of irregular cornea conditions; practical application on: choice of materials of rigid gas permeable lenses, design of specialty contact lenses.

Corequisite: 0943203 Contact Lenses (2)

0943301 Optometry Theory and Methods (3) {2} [2-2]

Normal vision development; visual development for special populations; relation between vision and learning; assessment methods for visual efficiency and visual information processing; treatment methods; introduction to the primary care clinic; emphasizing patient examination: assessment, plan and critical thinking.

Prerequisite: 0942303 Optometry Theory and Methods (2)

0943302 Optometry Theory and Methods Lab (3) {1} [1-2]

Review of basic clinical skills; prescription refinement; assessment methods for: visual efficiency, visual information processing; advanced clinical skills; complete visual assessment of patients; introduction to pediatric and geriatric refraction.

Corequisite: 0943301 Optometry Theory and Methods (3)

0943303 Visual Functions Testing Instruments {2} [2-2]

Principles of special testing instruments: electrophysiology, visual field testing, color vision testing, binocular vision assessment, corneal topography, fundus photography, fluorescein angiography, optical coherence tomography, tonometry.

Prerequisite: 0942303 Optometry Theory and Methods (2)

0943304 Visual Functions Testing Instruments Lab {2} [2-4]

Practice the use of special testing instruments: visual field testing, color vision testing, corneal topography, fundus photography, optical coherence tomography, tonometry.

Corequisite: 0943303 Visual Functions Testing Instruments

0943305 Ocular Diseases (1) {3} [3-3]

Introduction to the ocular structures of the anterior segment of the eye; common diseases affecting the anterior segment of the eye: pathophysiology, clinical presentations, diagnostic techniques, treatment options.

Prerequisite: 0942101 Ocular Anatomy and Physiology

0943306 Ocular Diseases (2) {3} [3-3]

Introduction; diseases affecting the posterior segment of the eye: pathophysiology, clinical presentations, diagnostic techniques, treatment techniques; systemic diseases related to ocular diseases.

Prerequisite: 0943305 Ocular Diseases (1)

0943401 Binocular Vision (1) {2} [2-2]

Introduction; review of ocular anatomy and physiology; Strabismus definition; strabismus types; etiology and pathophysiology of strabismus; diagnosis and treatment modalities.

Prerequisite: 0943305 Ocular Diseases (1)

0943402 Binocular Vision Lab (1) {1} [1-2]

Basic techniques used to detect the presence of strabismus and binocular vision anomalies; advanced clinical techniques; instruments used in binocular vision assessment; patient rapport.

Corequisite: 0943401 Binocular Vision (1)

0943601 Occupation Ethics and Optometric Business Management {2} [2-2]

Ethical theory; ethics in health care; optometric ethics; health policy; financial management; operations management; leadership; inter-professional relations; public health.

Prerequisite: 0942301 Optometry Theory and Methods (1)

0944301 Optometry Neuroscience {2} [2-2]

Introduction to neuroscience; common neurological diseases; ocular neuropathology disorders: etiology, symptoms, signs, diagnosis, treatment.

Prerequisite: 0943305 Ocular Diseases (1)

0944401 Pediatric Optometry {3} [3-3]

Introduction; ocular characteristics of the pediatric population; growth and development of the eye; pediatric vision assessment; diagnosis and management of pediatric eye disorders; vision screening; dyslexia; introduction to child psychology.

Prerequisite: 0943305 Ocular Diseases (1)

0944402 Binocular Vision (2) {3} [3-3]

Introduction; review of diseases related to binocular vision anomalies; advanced investigation of binocular vision; advanced assessment techniques; management of a range of binocular vision anomalies within optometric practice.

Prerequisite: 0943401 Binocular Vision (1)

0944501 Low Vision and Rehabilitation of Vision {3} [3-3]

Basic optical concepts; diseases related to low vision; proper usage and prescription of magnifying systems and imaging technology; non-optical low vision devices; introduction to vision rehabilitation.

Prerequisite: 0943305 Ocular Diseases (1)

0944502 Low Vision and Rehabilitation of Vision Lab {1} [1-2]

Introduction; basic optical concepts; use of magnifying systems and imaging technology; use of non-optical low vision devices; clinical skills and techniques for assessment and management; environmental modifications for low vision patients; basics of vision rehabilitation.

Corequisite: 0944501 Low Vision and Rehabilitation of Vision

0944503 Geriatric Optometry {2} [2-2]

Introduction; basic concepts of geriatrics medicine; ocular and systemic diseases related to geriatrics; assessment techniques; the role of optometrist in maintaining the independent lifestyles of these special populations.

Prerequisite: 0944501 Low Vision and Rehabilitation of Vision

0944601 Methods of Scientific Research {1} [1-1]

Introduction; scientific method of research; tools of research; statistical measurements.

Prerequisite: 0943303 Visual Functions Testing Instruments

0944801 Ophthalmic Clinics - Field Training (1) {3} [3-6]

Under the supervision of the optometry department, the student will examine patients with many different problems in optometry clinics dealing with: primary health care, primary eye care, contact lenses, spectacle dispensing.

Prerequisite: 0943303 Visual Functions Testing Instruments

0944802 Ophthalmic Clinics - Field Training (2) {3} [3-6]

Under the supervision of the optometry department, the students will expand their clinical skills by examining patients with many different problems in hospital clinics dealing with: primary health care, contact lenses, binocular vision, low vision, pediatric optometry, geriatric optometry.

Prerequisite: 0944801 Ophthalmic Clinics - Field Training (1)

0944901 Project {2} [2-2]

Upon the approval of the head of the department, and under the supervision of an assigned supervisor, the student will conduct a research project in the fields related to optometry, the student will then present the findings in front of the students and a research committee.

Prerequisite: Passed 90 Credit Hours

0913309 Ocular Pharmacology {2} [2-2]

Classification and pharmacologic actions of currently employed ophthalmic drugs; clinical utilization of the drugs: indications, contraindications, dosages, and side effects; medications used routinely for the delivery of primary eye care.

Prerequisite: 0921117 Anatomy & Histology

0942602 Laser Medical Applications {3} [3-3]

Types of lasers; laser-tissue interactions; ablation; photo-thermal processes; photochemical reactions; bio-stimulation and wound healing; interaction mechanisms; laser applications; laser delivery; laser safety.

Prerequisite: 0941601 Optical Physics

0943307 Occupational Vision {3} [3-3]

Introduction; lighting principles; ergonomics and industrial hygiene; occupational and environmental regulation; protective and preventative principles of ocular injury.

Prerequisite: 0942101 Ocular Anatomy and Physiology

0912501 Biostatistics {3} [3-3]



Introduction; basic concepts; types of statistical studies; graphical presentation of data; measure of central tendency; measure of variability; z-score; hypothesis testing; correlation; regression; analysis of variance.

Prerequisite: 0111101 Mathematics (1)

0943308 Introduction to Eye Surgery {3} [3-3]

History of eye surgery; theory and clinical application of ocular laser procedures; laser surgery for the treatment of anterior and posterior segment ocular diseases; refractive surgery for correction of: myopia, hyperopia, astigmatism and presbyopia.

Prerequisite: 0942101 Ocular Anatomy and Physiology

0944403 Pediatric Vision Rehabilitation {3} [3-3]

Review of children treatment modalities; remedial vision rehabilitation for visual efficiency; vision therapy of eye movement; visual information processing; visual field loss problems; psychological and sociological aspects.

Prerequisite: 0944401 Pediatric Optometry

0944702 Public Eye Health & Community Service {2} [2-2]

Introduction; public needs assessment; health economics; epidemiology; basic biostatistics; international initiatives in public health; patient-optometrist communication skills; the role of eye care professionals in public eye health.

Prerequisite: 0944801 Ophthalmic Clinics - Field Training (1)

0944703 Public Eye Health & Community Service Practical {1} [1-2]

Review of basic clinical skills; vision screening techniques in children; vision screening in adults; time management; adaptation to special environment and setup; student-patient interaction; student-parent interaction.

Corequisite: 0944702 Public Eye Health & Community Service