THE HONG KONG POLYTECHNIC UNIVERSITY

DEPARTMENT OF
OPTOMETRY AND RADIOGRAPHY

BACHELOR OF SCIENCE DEGREE
WITH HONOURS IN
OPTOMETRY

SYLLABUSES
(Credit-based)

2004
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Learning Aims

This subject provides the students with essential knowledge of the development and anatomy of the eye, orbit and ocular adnexa, and related regional anatomy. Students will understand the relationship between the visual system and different anatomical structures.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Embryology of the eye
The orbit
Structures and media within the eyeball
The ocular adnexa
Nerve supply to the eye, orbit and adnexa
Vasculature in the eye, orbit and adnexa
The visual pathway
The extra-ocular muscles

Indicative Content

Embryology of the eye: the sequence of events in the development of the eye and its appendages in the human foetus.
(1 hour)

The orbit: bones which make up the orbit and the various fossae and canals in the orbit.
(2 hours)

Structures and media within the eyeball: a detailed study of the different layers of the eyeball, their structures and functions.
(8 hours)

The ocular adnexa: the eyelids, lacrimal glands and tear drainage system.
(2 hours)
Nerve supply to the eye, orbit and adnexa: motor, sensory and autonomic nerve supply. 
(3 hours)

Vasculature in the eye, orbit and adnexa: arterial supply and venous drainage; origins and destinations. 
(2 hours)

The visual pathway: the location and anatomical nature of structures comprising the visual pathway; arrangement of nerve fibres from retina to visual cortex; implications of this arrangement on binocularity and the visual fields. 
(3 hours)

The extraocular muscles: anatomy, functions, nervous and vascular supply. 
(2 hours)

Laboratory work: reinforces lecture material by the observation of anatomical models, histological sections. 
(6 hours)

Tutorials will be used to provide remediation for individual students when necessary. 
(3 hours)

Assessment

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<th>Assessment</th>
<th>Percentage</th>
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<tr>
<td>Coursework</td>
<td>50%</td>
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<td>Examination</td>
<td>50%</td>
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<td>(2 hour written paper)</td>
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Reading List

Prescribed Reading


Recommended Reading


Learning Aims

This subject will discuss the measuring principles of different ocular components and their dimensions. Students will develop an understanding on the definition of different refractive errors, the optical corrections of these refractive errors, and the effect on retinal image size from them.

The students will learn the features of visual acuity chart and they will be able to design a proper visual acuity chart.

This subject will provide information on the principle of different optometers. The accommodative response with different accommodative stimuli, and with different optical corrections will also be covered.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Measurement of ocular components
Optics of the eye
Emmetropia and ametropia
Visual acuity
Optometers
Retinal image size and magnification
Accommodation

Indicative content

Measurement of ocular components (4 hours)
Methodology and techniques of ocular measurements including ultrasonography, keratometry and pachometry; frequency of distribution of ocular component dimensions
Optics of the eye (4 hours)
Optical properties of different ocular structures; different schematic eye models

Emmetropia and ametropia (4 hours)
Definition of different refractive conditions; frequency of distributions of ametropia

Retinal image size and magnification (4 hours)
Effects of refractive errors on retinal image size; spectacle and contact lens correction on retinal image size

Visual acuity (4 hours)
Limitations for visual resolution; introduction to visual acuity measurement; design of visual acuity chart; factors affecting visual acuity

Optometers (4 hours)
Optics and principles of the simple optometer, Badal's optometer, Young's optometer, retinoscopy

Accommodation (4 hours)
Relationship between stimulus and response; mechanism and properties of accommodation; spectacle and ocular accommodation

Laboratory work: reinforce lecture material by experimental study into aspects of visual optics such as ocular dimensions, visual acuity, accommodation, optometers. (12 hours)

Assessment

Coursework 40%
(written assessment and lab reports)

Examination 60%
(2 hours written paper)

Reading list

Prescribed Reading


Recommended Reading


Subject Title: Introductory Cell Biology and Biochemistry

Code : ABCT212

Credits : 3

Level : 2

Status : Compulsory

Stage : 1

Offering Department: ABCT

Semester : 1

Teaching Pattern

Lecture 38 hours

Tutorial 4 hours

42 hours

Learning Aims

To develop an appreciation of the structures and functions of cell organelles and the cell as an entity, and of the modern techniques used in cell biology.

To provide an understanding of the fundamental concepts in biochemistry.

To appreciate the role of biologically important molecules in living systems.

Outline Syllabus

Cell structure and functions

Cell cycles and development of cell specificity in eukaryotes

Introduction to modern methods in cell biology

Structure, properties and functions of molecules of life

Catabolism and generation of energy

Biosynthesis and utilization of energy

Indicative Content

Cell structure and functions: prokaryotic and eukaryotic cells, the architecture of plasma membrane, transport across membrane, internal membranes and cell energetic, chemical signaling between cells, cytoskeleton and cell movement, cilia and flagella, endoplasmic reticulum, ribosomes, Golgi apparatus, lysosomes and peroxisomes and the nucleus (7 hours)

Cell cycles and development of cell specificity in eukaryotes, cell cycle and cells in early stage of development, determination and differentiation of cells in higher eukaryotes, maintenance of adult organs by stem cells (6 hours)

Introduction to modern methods in cell biology: microscopy and histological methods, cell fractionation and analysis of subcellular components, cytochemical techniques, autoradiography and radioisotope labeling techniques (7 hours)

Structure, properties and functions of molecules of life: water, carbohydrates, lipids, proteins and vitamins. Vision biochemistry and its relation to Vitamin A. (7 hours)
Enzymes: nature and mode of action of enzymes, regulation and importance in biological systems, isoenzymes and coenzymes, enzyme kinetics (4 hours)

Catabolism and generation of energy: bioenergetic principles, glycolysis, citric acid cycle, hexose monophosphate shunt, electronic transport, oxidation of fat, proteolysis, deaminations, fate of carbon skeleton, urea cycle (8 hours)

Biosynthesis and utilization of energy: gluconeogenesis, glycogenesis, biosynthesis of lipids, amino acids and proteins (6 hours)

Tutorials are aimed at clarifying material related to lectures and background reading. They will be organized as group discussion on (a) assigned structured problems and (b) areas of weakness identified through continuous assessment or structure self-learning processes. The hours given for the indicative content include 4 tutorials classes.

Assessment

- Coursework 50%
  (2 one-hour written assessment)
- Examination 50%
  (2 hours written paper)

Reading List

Prescribed Reading


Subject Title : Foundation Physiology I   Code : ABCT216
Credits : 3      Level : 2
Status : Compulsory     Stage : 1
Offering Department: ABCT     Semester : 1

Teaching Pattern

Lecture : 32 hours
Laboratory : 6 hours
Tutorial : 6 hours

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44 hours

Learning Aims

The first aim is to provide a basic understanding of the normal functioning of the human body. Emphasis is placed on mode of mechanisms. Secondly, to instill into students the various control mechanisms of the body and to appreciate the integrative nature in the operation of the different body systems for survival and adaptation in health and illness.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Tissue types and organization
Nervous system
Muscular system
Cardiovascular system
Respiratory system

Indicative Content

Tissue types and organization: Classification of tissues, histological structure and function of tissues; general organization of the human body in relation to organs and systems.

Nervous system: Classification, structure, function and properties of neurons and synapses; basic anatomy and divisions of the nervous system; roles of the central as well as the autonomic nervous system; receptors and chemical transmission at nerve-nerve and nerve-muscle junctions; neurotransmitters; organization and function of the sensory system for both general and special senses; control of body movement.

Muscular system: Main components of the skeleton; basic joint anatomy; principles of muscle arrangements, stress acting on the skeleton; classification of muscles; mechanisms of different types of muscle contraction; neural control of the skeletal system.
Cardiovascular system: Structure and function of the heart and blood vessels; control of cardiac functions; function of the systemic and pulmonary circulation; haemodynamics; components and properties of blood; structure and function of the lymphatic system.

Respiratory system: Organization and structure of the respiratory system; ventilation and lung mechanics; exchange of gases in alveoli and tissues; transport of blood gases; chemical control of ventilation.

Practical: Measurements of nervous stimulus intensifies; summation of stimuli; latent period; effects of neurotransmitters on the cardiac functions; localization of the pacemakers; measurement of blood pressure and ECG in humans; investigation on the chemical control of ventilation.

Tutorials: Class activities be engaged to students to exercise the theory-practical integration in the various body systems.

**Assessment**

| Coursework | 50% |
| Examination | 50% |

**Reading List**


Subject Title : Optics 1
Credits : 2
Status : Compulsory
Offering Department : AP

Teaching Pattern
- Lecture : 18 hours
- Laboratory : 10 hours
- Tutorial : 5 hours
Total : 33 hours

Learning Aims
To develop within the student the ability to solve optical problems and to understand optical phenomena.
To provide the student with background knowledge of physical and geometrical optics essential for the future study of visual and optometric science.
The learning outcomes are listed in the teaching schedule.

Outline Syllabus
- Optics of thick lenses and lens systems
- Lens aberrations
- Optical instruments

Indicative Content
Gaussian optics - reflection and refraction at plane and spherical surfaces; cardinal points of thick lenses and lens systems; image forming systems.
(10 hours)

Aberrations - dispersive power of optical materials; achromatic prisms and lenses; monochromatic aberrations; ray tracing.
(6 hours)

Optical instrumentation: stops, pupils and windows; cameras, simple magnifiers and eyepieces, microscopes, telescopes.
(7 hours)

Practical work: basic optical techniques.
(10 hours)
Assessment

Coursework 40%

Examination 60%
(2 hour written paper)

To pass the subject, students must obtain grade D or above in the examination.

Reading List

Prescribed Reading


Recommended Reading

Subject Title : English for Academic Purposes  
Credits : 3  
Status : Compulsory  
Offering Department: ELC

Teaching Pattern

Seminar  
42 hours

Learning Aims

1. In general, to help students study effectively in the University’s English medium learning environment.

2. More specifically, to help students to improve and develop their English language proficiency within a framework of academic contexts.

In working towards the achievement of the two interrelated objectives, attention will be given to helping students develop the core competencies identified by the University as vital to the development of effective life-long learning strategies and skills.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

This syllabus is indicative. The balance of the components, and the weighting accorded to each will be based on the specific needs of the students.

To work towards the accomplishment of its objectives, the syllabus is specified under a single heading consisting of four interrelated strands.

English language development in academic contexts

1. *Spoken academic communication*: recognising the purposes of and differences between spoken and written communication in English in academic contexts; identifying and practising interactional and linguistic aspects of participation in seminar discussions; discussing issues requiring the development and application of creative and critical thinking; preparing and delivering oral presentations.

2. *Written academic communication*: identifying and writing functions common in written academic discourse; note-taking from reading and listening inputs; understanding and applying principles of academic text structure; developing paraphrasing, summarising and referencing skills; improving editing and proofreading skills; achieving appropriate tone and style in academic writing.

3. *Reading and listening in academic contexts*: understanding the content and structure of information delivered both orally and in print form; reading and listening for different purposes e.g. as input to tasks, and for developing specific reading or
listening skills; using a dictionary to obtain lexical, phonological and orthographical information.

4. **Language development**: improving and extending relevant features of students’ grammar, vocabulary and pronunciation.

**Indicative Content**

The subject is designed to enable students to use English effectively in the academic contexts they will encounter in their studies. The main emphasis is on improving students’ confidence and competence in using English in these contexts. As far as possible, the subject will address the specific language needs of students’ ability levels and subject specialisms.

The study method is primarily based on seminars and these will include interactive learning techniques such as discussions and role-plays. Use will also be made of video and tape recordings, relevant Web-based materials/activities and our Centre for Independent Language Learning. Students in need of additional help will be required to attend a supplementary English programme organised by the English Language Centre.

**Assessment**

| Continuous Assessment of Coursework | 100% |

**Reading List**

1. **Spoken academic communication**
   


2. **Written academic communication**
   


3. **Reading and listening in academic contexts**
   

4. Language development


Teaching and Learning Materials

*English for Academic Purposes* published by the English Language Centre, the Hong Kong Polytechnic University and specially prepared material from the Centre will be used throughout the course. In addition, teachers will recommend additional reference materials as required.
Teaching Pattern

Lecture 28 hours
Laboratory/ Tutorial 14 hours

42 hours

Learning Aims

This subject provides the students with basic knowledge in the structure and function of the human body. Students will develop an understanding of the usage of descriptive terminology with an introduction to a variety of imaging modalities of the living human anatomy. There is a reinforcement of clinical and medical terminology leading to a preliminary understanding of general disease processes.

This subject will form the basic background for students to enroll in Foundation Pathology (OR256) or Faculty-wise common subject in Patho-physiology when deemed necessary.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Introduction to the human body and anatomical terminology
An integration of systemic anatomy and regional anatomy
Anatomy of the Thorax
Anatomy of the Head, Neck and Neuroanatomy
Anatomy of the Upper and Lower Limbs
Anatomy of the Abdomen and Pelvis

Indicative Content

Introduction to the human body and anatomical terminology; an overview of systemic and regional anatomy (2 hours)

Integrated anatomy of the Thorax (6 hours)
- Anatomy of the thoracic cavity into pulmonary chambers and mediastinum
- Gross anatomy of the airways, lungs, heart and great vessels
- Mechanisms of respiration
- Integumentary system
- Respiratory system
- Cardiovascular system
Lymphatic system
Immune system

Integrated anatomy of the Upper and the Lower limbs (8 hours)
Bones, joints and human movements
Musculoskeletal system
Haematopoietic system
Peripheral nervous system

Anatomy of the Head and Neck (4 hours)
Anatomy of the human skull and cervical vertebrae
Visceral compartments and triangles of the neck
Cavities and related vital organs of the head
Vascular structures of the head and neck
Integration to related body systems

Neuroanatomy (2 hours)
Neuroanatomy of the brain and cranial nerves
Anatomy of the vertebral column, the spinal cord and peripheral nerves
Nervous system and special senses

Integrated anatomy of the Abdomen and Pelvis (6 hours)
Anatomy of the abdominal, pelvic cavity and perineum
Anatomy of the gastrointestinal tract and related organs in digestion; digestive system
Differentiation of intraperitoneal, retroperitoneal and infraperitoneal viscera
Anatomy of the posterior abdominal wall and the renal tract; urinary system
Anatomy of the male urogenital organs
Anatomy of the female reproductive organs
Reproductive system
Overview of endocrine system

Laboratory work and tutorials (14 hours): to reinforce the lecture materials with observation of dissected specimens and computer-aided learning tools.

Assessments
In-class and/or take-home coursework (with continuous practical assessments) 60%
Final Examination (2-hours written paper) 40%

Reading List

Prescribed Reading

Lau TYH. Anatomy Project CD-ROM (version 1.0) with integrated text, Department of Optometry and Radiography, PolyU, 2003.


Reference of interest


Learning Aims

This subject prepares the students to practise and communicate effectively in the clinical settings. The students will develop skills in operational procedures related to preliminary procedures and clinical refraction. Students will develop fundamental clinical skills throughout the course augmented by structured laboratory training.

Outline Syllabus

The preliminary examination
Assessment of visual acuity
Retinoscopy
Clinical use of keratometry in refraction
Auxiliary refractive techniques
Subjective refraction

Indicative Content

The preliminary examination: the goals of performing preliminary tests. History taking; habitual VA and its significance; the Hirschberg test and angle kappa test, the theory and methods of the unilateral and alternate cover tests; assessment of binocular motility; the near point of convergence and other evaluations; the near point of accommodation, the evaluation of ocular dominance will be discussed. The evaluation of normal and abnormal pupil responses and iris colour. Investigation of confrontation visual fields and screening for central field will be discussed.
(7 hours)

Assessment of visual acuity: concepts of aided and unaided acuity; comparisons between systems of recording visual acuity; clinical methods of measurement; relationships
between refractive error and acuity, high contrast versus low contrast visual acuity. Effect of amblyopia and abnormal eye conditions on vision.
(3 hours)

Retinoscopy: spot and streak retinoscopy – static methods; retinoscopy in astigmatism; near point retinoscopy - the Mohindra technique; dynamic methods; variations of dynamic retinoscopy - MEM retinoscopy, chromoretinoscopy. Application of these results will be discussed.
(4 hours)

Keratometry: Clinical application in refraction.
(1 hours)

Auxiliary refractive techniques: principles, methods and applications of autorefraction, photorefractive and laser refraction.
(2 hours)

Subjective refraction: monocular subjective refraction; principles and methods - fogging techniques, fan and block techniques, Jackson's crossed cylinder; monocular refractive endpoints - +1.00D blur, duochrome tests; binocular equalisation methods - infinity balance, prismatic techniques; binocular subjective refraction; near subjective refraction.
(7 hours)

Laboratory work: All lectures are augmented by appropriate laboratory work emphasising the acquisition of basic clinical skills in the methods of optometric examination. Students will be expected to compare, contrast and evaluate examination methods, and to practice the implementation. Laboratory attendance is compulsory. All students have to participate in a 3-hr equivalent project (e.g. vision screening) in the community.

Tutorials: small-group discussions on clinically related topics will take place, e.g. discussion of clinical examination strategies, relationship amongst tests, comparative evaluation of procedures.

Assessment

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Reading List

Prescribed Reading

Grosvenor TP. Primary Care Optometry, 4th Ed., Butterworth & Heinemann, 2002

Benjamin WJ. Borish’s Clinical Refraction. WB Saunders, Philadelphia. 1998


Recommended Reading

Amos JF (ed) Diagnosis and Management in Vision Care, Butterworths, Singapore. 1987

Learning Aims

This subject provides the students with knowledge of the functions and physiology of various ocular tissues. Students will develop an understanding of the general physiology of the eye and its relation with selected ocular anomalies. Student will acquire knowledge of the physiology of the eye necessary for further studies in vision science and clinical optometry.

Syllabus

The cornea
The uveal tract
The retina
Production and drainage of aqueous humour
Intraocular pressure
The vitreous humour
The crystalline lens
Accommodation
The pupil
Reflex arcs
The eyelids
Production and drainage of tears
Retinal photochemistry

Indicative Content

The cornea: function, metabolism and maintenance of transparency (4)

Production and drainage of aqueous humour: its composition, metabolism, mechanism of production and routes of drainage

The intraocular pressure: its origin, range of distribution in the population; measurement; diurnal variations (4)
The vitreous humour: its production, composition, metabolism, and functions (2)

The crystalline lens: metabolism and functions, general discussion on the formation of cataract Accommodation: its function, causes and control; the nature and causes of presbyopia (4)

The pupil: factors controlling pupil size; relationship between pupil size and visual function

Reflex arcs: the nervous pathway of various ocular reflexes including pupillary, accommodation and convergence; eye movements (2)

The eyelids: control of the blink actions; functions of eyelid glands and secretory cellsProduction and drainage of tears: composition, function and drainage of tears (2)

The retina: metabolism and functions of the various layers. Photochemistry of vision: visual pigments; chemical nature of rhodopsin; responses to light (4)

(22 hours)

Two hours are set aside for assessment.

Laboratory work: reinforces lecture material by experimental study into aspects of physiology such as intra-ocular pressure, the lacrimal apparatus and tears and corneal function (9 hours).

Tutorials will be used to support student's self-learning activities and to provide remediation for individual students when necessary (5 hours).

**Assessment**

- Coursework 50%
- Examination 50%
- (2 hour written paper)

**Reading List**

**Prescribed Reading**


**Recommended Reading**

**Subject Title**: Visual Science 2  
**Code**: OR315  
**Credits**: 3  
**Level**: 3  
**Status**: Compulsory  
**Stage**: 1  
**Offering Department**: OR  
**Semester**: 2

**Students are required to have attended**: Anatomy for Optometry (OR206)

**Teaching Pattern**

- Lecture: 28 hours  
- Laboratory: 12 hours  
- Tutorial: 4 hours  

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**Learning Aims**

This subject provides a basic understanding of normal binocular vision and its theoretical basis. Students should be able to apply the binocular vision theory in clinical binocular vision examination. There is introduction to the physiological and perceptual problems of the normal eye.

The learning outcomes are listed in the teaching schedule.

**Outline Syllabus**

- Binocular vision in humans and other animals  
- Binocular interaction  
- Sensory aspects of binocular vision  
- Depth perception and stereopsis  
- Aniseikonia  
- Normal eye movements  
- Fusional responses and near vision complex  
- Development of normal binocular vision  
- Ocular transmission and aberrations  
- Entoptic phenomena

**Indicative Content**

- Binocular vision in humans and other animals (2 hours)  
- Anatomical and structural features in different species with binocular vision; levels of binocularity in different species; evolution and environmental adaptation
Sensory aspects of binocular vision (4 hours)
Visual projection; corresponding and disparate retinal points; theoretical and empirical horopters; Panum's area and fusional space; physiological diplopia; fixation disparity

Fusional responses and near vision complex (4 hours)
Fusional movement; heterophoria; accommodation, convergence and pupillary reaction

Depth perception and stereopsis (3 hours)
Physical factors aiding depth judgment; stereopsis; theoretical models for stereopsis

Normal eye movements (3 hours)
Fixation eye movement; saccades; pursuit; ductions; versions; vergence

Aniseikonia (2 hours)
The effect of unequal retinal image size on binocular vision and space perception

Binocular interaction (2 hours)
Advantages of binocular vision; binocular summation and inhibition; theoretical models

Development of normal binocular vision (2 hours)
Binocular development from infancy to adulthood; the sensitive period; effect of visual deprivation

Ocular transmission and aberrations (3 hours)
Transmission and absorption spectra of the media components; their effects on vision; aberrations of lens systems as applied to the eye; effects of these upon vision

Entoptic phenomena (3 hours)
Physiological visual sensations and their cause and effects

Laboratory work: reinforces lecture material by experimental study such as stereopsis, entoptic phenomena. (12 hours)

Assessment

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<td>Coursework</td>
<td>40%</td>
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<td>(1 hour written assessment of 25%, 2 lab reports of 15%)</td>
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<tr>
<td>Examination</td>
<td>60%</td>
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<td>(2 hours written paper)</td>
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Reading List

Prescribed Reading


**Recommended Reading**


Learning Aims

The first aim is to provide a basic understanding of the normal functioning of the human body. Emphasis is placed on mode of mechanisms. Secondly, to instill into students the various control mechanisms of the body and to appreciate the integrative nature in the operation of the different body systems for survival and adaptation in health and illness.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Digestive system
Immune system
Endocrine system
Reproductive system
Renal system

Indicative Content

Digestive system: Structure of the digestive system; digestion and absorption; regulation of the digestive processes.

Immune system: Classifications of cells of the internal defense system; recognition of self and “non-self”, non-specific defense processes; specific defense processes; roles of antibodies and complement pathways.

Endocrine system: Organization and structure of the endocrine system; classification of hormones; controlling mechanisms of hormone secretion; function of hormones; anatomical and physiological link between the endocrine and nervous systems.
Reproductive system: General principles of gametogenesis; male reproductive physiology; female reproductive physiology; female sex cycle; pregnancy.

Renal system: Organization of the urinogenital system; structure of a typical nephron; basic renal processes; regulation of sodium and water balance; regulation of potassium, calcium and hydrogen ions.

Practical: Measurements of digestive enzyme activities, antibody and antigen reactions in blood.

Tutorials: Exercises in theory-practical integration in the various body systems studied.

**Assessment**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coursework</td>
<td>50%</td>
</tr>
<tr>
<td>Examination</td>
<td>50%</td>
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</tbody>
</table>

**Reading List**

Teaching Pattern

Lecture 42 hours

Learning Aims

This subject provides the student with an understanding of the basic concepts of calculus and mathematics and their application. This subject is for students of FHSS with no A-level Pure Mathematics Background.

Outline Syllabus

Basic mathematics
Differential Calculus
Integral Calculus

Basic mathematics : Trigonometry, complex numbers, 2x2 matrices.

Differential Calculus : Differentiation from the first principles, rules of differentiation, differentiation of algebraic, trigonometric, logarithmic and exponential functions, differentiation of inverse functions and implicit functions, Leibniz's theorem, application of differentiation.

Integral Calculus : Definite and indefinite integrals, methods of integration, reduction formulas, Simpson's rule and trapezoidal rule, applications of integration.

Assessment

Coursework 30%
Examination 70%

Reading List

Prescribed Reading


Recommended Reading

Anton, H. Calculus with Analytic Geometry John Wiley & Sons, 1992
Foundation Mathematics, Department of Applied Vol 1 & Vol 2 Mathematics, 1996
Teaching Pattern

Lecture 26 hours
Laboratory 20 hours
Tutorial 6 hours

52 hours

Learning Aims

To develop within the student the ability to solve optical problems and to understand optical phenomena.

To provide the student with background knowledge of physical and geometrical optics essential for the future study of visual and optometric science.

Outline Syllabus

Wave nature of light
Production and Measurement of light

Indicative Content

Wave nature of light - Fresnel's laws of reflection; optical fibres; interferometry and applications; optical coating; Fresnel and Fraunhofer diffraction; zone plates and their application; resolving power; polarization by reflection, scattering, dichroism and birefringent; applications of polarized light.
(18 hours)

Production and Measurement of light- dual nature of light; black body radiation; atomic spectra; nature and applications of lasers; fundamental laws of photometry; reflectance, transmittance and absorbance; principles and applications of lasers.
(14 hours)

Practical work: experiments on geometrical and physical optics.
(20 hours)
Assessment

Coursework 40%
Examination 60%
(2 hour written paper)

*To pass the subject, students must obtain grade D or above in the examination.*

Reading List

Prescribed Reading


Recommended Reading

Subject Title : Applied Microbiology
Code : SN281
Credits : 2
Level : 2
Status : Compulsory
Stage : 1
Offering Department: SN
Semester : 2

Teaching Pattern

<p>| Lecture | 24 hours |</p>
<table>
<thead>
<tr>
<th>Laboratory</th>
<th>6 hours</th>
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<td>30 hours</td>
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</table>

Learning Aims

To provide the student with the microbiological knowledge required for an understanding of the control and treatment of ocular infection.

To make the student aware of the aseptic precautions necessary for the safe practice of optometry.

Outline Syllabus

Introduction to microbiological principles
Characteristics of micro-organisms
Bacterial, fungal and viral pathogens
Parasitism
Spread of micro-organisms and disease
Control of cross infection
Eye infections: an introduction
Chemotherapeutics : an introduction
Biodeterioration
Sterilization and disinfection
Care of optical instruments

Indicative Contents

Introduction; applied microbiology as an aid to diagnosis; specimens required for diagnosis; characteristics of commonly found micro-organisms; differences between bacteria, fungi and viruses
Pathogens; sites and sources of infection; properties of micro-organisms that cause disease; differentiation of commensals from pathogens
Parasitism; relationship between host and parasite and between the characteristics of micro-organisms and their mode of parasitism
(7 hours)
Spread of micro-organism; transmission of disease; infectious disease, epidemic, endemic and carrier; reservoirs of infection and mode of spread; measures to control the spread of infections by controlling transmission, the use of quarantine and vaccination (5 hours)

Eye infections; the aetiologies agents of eye infections; the environment, and the physical chemical defense mechanisms of the eye (4 hours)

Chemotherapeutics; principles and use of commonly used antibiotics; mutation and adaptation of bacteria to antibiotics
Biodeterioration; prevention of biodeterioration; factors influencing the growth of fungi (4 hours)

Care of optical instruments; methods of storage; properties and use of microbiocides (2 hours)

Sterilization; the principles of sterilization and disinfection and the agents commonly used; methods of use of those agents and the reasons for their choice; monitoring of the effectiveness of these procedures (4 hours)

Laboratory work: experiments are incorporated in the subject to enhance the concepts of transmission and control of disease (4 hours)

**Assessment**

<table>
<thead>
<tr>
<th>Coursework</th>
<th>50%</th>
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<tr>
<td>(1 hour written assessment of 25%, 3 lab reports of 15% 1 presentation of 10%)</td>
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<table>
<thead>
<tr>
<th>Examination</th>
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<tbody>
<tr>
<td>(2 hours written paper)</td>
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</table>

**Reading List**

**Prescribed Reading**

**Recommended Reading**


Block, Seymour, Stanton (Eds). Disinfection, Sterilization and Preservation. Lippincott Williams and Wilkins, Philadelphia 2001
Subject Title : Ophthalmic Optics and Dispensing 1  
Code : OR307  
Credits : 3  
Level : 3  
Status : Compulsory  
Stage : 2  
Offering Department: OR  
Semester : 3

Teaching Pattern

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<th>Hours</th>
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<td></td>
<td>52</td>
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</table>

Learning Aims

This subject provides the students with the knowledge of ophthalmic optics and the understanding and practical experience of ophthalmic dispensing. Students will develop the basic clinical skill of dispensing and the ability to understand properties of new ophthalmic products.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Vergence method of ray tracing
Basic optic properties of single vision lenses
Ophthalmic lens power and form presentation
Ophthalmic prism and lens decentration
Obliquely crossed cylinders
Accurate transposition
Lens materials and fabrication
Lenticular and Fresnel lenses
Frame material and types
Frame and face measurement

Indicative content

Vergence method of ray tracing : Theory, method and applications of tracing paraxial ray through single and complex lens systems. (3 hours)

Basic optical properties of single vision lenses : Optical properties of spherical and spherocylindrical lenses; principles of focimeter and lens measure. (4 hours)

Ophthalmic lens power and form presentation : Lens power and form transposition. Writing of prescriptions and lens shapes presentations. (2 hours)
Ophthalmic prism and lens decentration: Specification of ophthalmic prisms and interactions of prisms. Theory and calculation of prismatic effects on lens decentration. (3 hours)

Obliquely crossed cylinders: Effects and calculation of cylinders crossed at any angle. (2 hours)

Accurate transposition: Calculation of exact lens forms for thick lenses, with bi-toric surfaces. (3 hours)

Lens materials and their fabrication: Optical and physical properties of common ophthalmic lens materials; selection of lens materials. Introduction to processes of lens making. (3 hours)

Lenticular and Fresnel lenses: Optical principles and ophthalmic uses of lenticular and Fresnel lenses. (2 hours)

Frame materials: Merits of different types of spectacle frame materials; frame types and components parts; effects of frame designs on fitting. (2 hours)

Frame and face measurement: Introduction to spectacle frame and face measurement. (3 hours)

Laboratory/workshop practice:
Workshop safety; lens measure; thickness caliber; PD and frame measure; lens marking; lens edging; uses of focimeters for single vision lenses and completed spectacles; basic spectacle fitting.

Seminar and tutorial
Feedback on student progress and to provide remediation on a group/individual basis. Discussion of issues related to spectacle fitting/dispensing will be conducted.

**Assessment**

- Coursework: 40%
- Examination: 60%
  (2 hour written paper)

Workshop practice will be assessed continuously and by practical tests. Students are required to pass the practical component in order to pass the overall module.
Reading List

Prescribed Reading


Recommended Reading


Learning Aims

This subject prepares the students to practise and communicate effectively in the clinical settings. The students will develop skills in clinical procedures related to binocular assessment, ocular biomicroscopy, and ocular health assessment. Students will develop fundamental clinical skills throughout the course augmented by structured laboratory training. Students are expected to maintain and further develop skills acquired in CO1 using the extra laboratory sessions.

Outline Syllabus

Accommodation and presbyopia
Investigation of binocularity
Slitlamp biomicroscopy
Clinical uses of diagnostic drugs
Intraocular pressure and tonometry
Sphygmomanometry and Ophthalmodynamometry

Indicative Content

Investigation of binocularity: briefly review the theories and principles of binocular visual functions; heterophoria and heterorphic tests - principles and methods; the accommodation-convergence relationship - the AC/A and CA/C ratios; assessment of fusional vergences - methods and normal findings, the vergence-facility test; stereopsis - measurement and clinical applications; the identification of binocular anomalies - nomenclature, analysis of binocular status. (8 hours)
Accommodation and presbyopia: comfortable near vision; the amplitude of accommodation - methods of measurement, effects of age; crossed-cylinder tests of accommodation; relative ranges of accommodation; accommodative facility test; determination of the presbyopic addition. (3 hours)

Slitlamp biomicroscopy: methods and practice of illumination and observation; appearances of normal ocular tissues; clinical applications of biomicroscopy; the use of vital stains. (4 hours)

Clinical uses of diagnostic drugs: Clinical applications of ophthalmic diagnostic drugs – indications, contraindications and precautions for use; evaluation of effectiveness of various preparations; cycloplegic refraction. (3 hours)

Intraocular pressure and tonometry: measurement of intraocular pressure; applanation and indentation tonometry; non-contact tonometry; clinical applications of tonometry in practice. (3 hours)

Sphygmomanometry: principle and method of sphygmomanometry; applications in optometric practice; ophthalmodynamometry – theory and application in optometric practice (1 hour)

Laboratory work: All lectures are augmented by appropriate laboratory work emphasizing the acquisition of basic clinical skills in the methods of optometric examination. Students will be expected to compare, contrast and evaluate examination methods, and to practice the implementation. Laboratory attendance is compulsory.

All students have to actively participate in a 3-hr equivalent project (e.g. vision screening) in the community.

Tutorials: small-group discussions on clinically related topics will take place, e.g. discussion of clinical examination strategies, relationship amongst tests, comparative evaluation of procedures.

Assessment

Coursework 60%
(Students must pass the laboratory assessment)

Examination 40%
(2 hour written paper)

Reading List

Prescribed Reading

Grosvenor TP. Primary Care Optometry, 4th Ed., Butterworth & Heinemann, 2002

Benjamin WJ. Borish's Clinical Refraction. WB Saunders, Philadelphia. 1998

Recommended Reading

Amos JF (ed) Diagnosis and Management in Vision Care, Butterworths, Singapore. 1987

Teaching Pattern

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
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<td>Lecture</td>
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<tr>
<td>Laboratory</td>
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<tr>
<td>Tutorial</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
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</table>

Learning Aims

This subject provides students with essential knowledge in the understanding of visual neurophysiology. The students will understand the retinal integration and visual neural organization, the features in visual electrophysiology, the coding system in vision and the relationship between light and vision.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Anatomy of the visual pathway - brief revision
Light and the visual system
Retinal integration of visual information
Electrophysiology of the visual system
Neural organization of the visual system in the brain
Coding in the visual system

Indicative Content

Anatomy of the visual pathway: brief review of the nerve fibre distribution in the retina, optic nerve, optic chiasma and optic pathway; visual and synaptic relations in midbrain and cerebrum. (1 hour)

Light and the visual system: introduction to photometry; light as a physiological stimulus, characteristics of light, representation of the visual stimulus on the retina; circadianism and vision. (5 hours)

Retinal integration of visual information: convergent properties of retinal signals in the retina; integration of visual information in the retina in relation to the control of retinal sensitivities. (4 hours)
Electrophysiology of the visual system: the physiological basis of ERG, EOG, and VER to structured and unstructured stimuli. (7 hours)

Neural organization of the visual system in the brain: representation of the visual stimulus on the visual cortex; receptive fields and properties of various cells involved in the visual pathway; relationship between cortical organization and light, form and colour perception, movement and stereopsis. (3 hours)

Coding in the visual system: concept and organization of receptive fields, edge detection, spatial frequency tuning, neural channels. (4 hours)

Laboratory sessions are designed to enhance the concept in luminosity function and visual electrophysiology. (4 hours)

Tutorials will be used to provide remediation for individual students when necessary (3 hours)

Assessment

Coursework 50%
Examination 50%
(2 hour written paper)

Reading List

Prescribed Reading


Recommended Reading


Brain story [videorecording], London : BBC, c2000. episode 1-6 QP376 .B737


Greenfield S. Brain story : unlocking our inner world of emotions, memories, ideas and desires London : BBC, 2000


Chan HL, Tam WK, Chen CL, Ng NC. The detection of small simulated field defects using multifocal VEPs. Ophthal Physiol Opt 2003; 23:205-212.


Subject Title : Applied Statistics and Research Methodology

Credits : 3
Status : Compulsory
Offering Department: OR

Teaching Pattern

Lecture 22 hours
Tutorial 11 hours
Self-learning 8 hours
Computer assessment 1 hours
42 hours

Learning Aims

Identify and discuss general and human ethical issues related to a given research project
search a database for papers related to a given topic; cite and reference appropriately

Demonstrate the ability to read and write reflectively

Demonstrate an understanding of basic research design issues

Develop null and experimental hypotheses and state appropriate statistical test(s) to test
the null hypothesis

Interpret the results of a statistical test

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Research ethics
Reviewing and criticising the literature
Structuring a literature review
Generating hypotheses
Experimental design
Describing and displaying quantitative and qualitative data
Choosing and using appropriate statistical tools
Interpreting and reporting the results of statistical tests
Indicative Content

A. Research Methodology (24 hours = 14 lecture hours + 10 tutorials)

- Introduction (2 lec)
- Research ethics
  - PolyU Code of Research Ethics
  - Plagiarism and its avoidance
  - Use of human subjects: ethical considerations; applying for approval (2 lec)
- Critical reading and writing skills
  - Sourcing and citing other work and producing reference lists
  - Critical evaluation of research papers (10 tut 15/group)
  - Writing a literature review
- Generating hypotheses
- Framing the question and defining the Null Hypothesis and the alternative hypothesis
- Probability
  - Type I and Type II errors; levels of significance, definition of power; one and two-tailed tests
  - Concept of $p$ values
- Experimental design issues
  - Control groups
  - Prospective vs retrospective designs
  - Cross-sectional vs longitudinal designs
  - Validity and reliability of data
  - Repeated measures
- Sampling
  - Populations and random samples:
    - Use of different sampling methods: systematic, stratified and cluster sampling
- Surveys
  - Instrument validity, Likert scales, designing questionnaires, qualitative analysis (10 lec)

B. Applied Statistics in Research (18 hours)

- Types of data and measurement scales: interval and ratio scales.
- Description and display of data.
- Characteristics of a normal distribution.
- Sampling distribution of the mean and standard error, degree of freedom.
- Estimation of population mean and confidence limits.
- Sample size consideration.
- Parametric and nonparametric tests: Student’s T-test; Wilcoxon test, Mann-Whitney test, Kruskal Wallis test.
- Linear regression and correlation.
- Chi-square test (8 lec)
Computer work - self-learning package on elementary data analysis. Students will be required to consult a nominated tutor as they work through the package.

Introduction to Instat
Data entry; running tests; interpretation of test results; reporting findings.
Choosing appropriate statistical tests
Comparing a group with a standard group; comparing two groups, comparing more than two groups
Testing relationship
Testing association
Testing agreement
Basic sample size calculations

Assessment
Assessment is 100% coursework
[Both elements of the assessment must be completed successfully].

(a) An assessment of ability to select, use and interpret results from an appropriate statistical test [0.5]
(b) A fully referenced literature review [~1,500 words] on a selected topic [0.5]

Reading List


Subject Title : Elementary Putonghua      Code : CLC211
Credits : 3        Level : 2
Status : Compulsory     Stage : 2
Offering Department : CLC    Semester : 3

Teaching Pattern

Seminars  

42 hours

Learning Aims

This subject aims to acquaint students with basic communication skills in Putonghua.

Outline Syllabus

Students are expected to:
1. have relevant knowledge in spoken Modern Standard Chinese;
2. be sensitive to major differences between Cantonese and Putonghua;
3. be familiar with the Pinyin system of Mandarin phoneticization;
4. be capable of understanding and expressing themselves in Putonghua for essential daily communication purposes.

Indicative Content

A. Phonology
1. the syllabic structure of Putonghua
2. the Pinyin system
3. the pronunciation of phonetic symbols
4. pronunciation difficulties of Cantonese learners
5. tone variation, neutral tone and final retroflexion

B. Lexical and grammatical foundation
1. building up of Putonghua lexicon
2. Cantonese Putonghua comparison in terms of lexical differences
3. Cantonese Putonghua comparison in terms of grammatical differences

C. Practical skills
1. skills of listening to conversations that take place in different contexts, fulfilling different functions, at different speed.
2. ways of expression fulfilling various functions including enquiry, apologizing, praising, responding, explaining and requesting.
3. simple conversation on topics such as greeting, making appointment, buying things, making telephone calls, TV programmes, Hong Kong weather etc.
4. short talks on topics such as transportation, catering business, housing problem and social welfare in Hong Kong, personal habits, hobbies, Chinese customs and festivals, fashions etc.
Assessment

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Continuous Assessment</td>
<td>100%</td>
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<tr>
<td>Coursework</td>
<td>(60%)</td>
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<tr>
<td>Term-end Test</td>
<td>(40%)</td>
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</table>

Reading List

Text book
香港理工大學中文及雙語學系“通用普通話教程”編寫組編《通用普通話教程》
第一、二冊，香港：星河教育出版社，1997。

Reference
中國社會科學院語言研究所詞典編輯室編
《現代漢語詞典》(修訂本)，北京：商務印書館，1996。

Attendance

If attendance of the subject falls below 70%, only 80% of the total marks would be counted towards the final grade.
Learning Aims

This subject aims to provide students with the theoretical background necessary to develop a personal construct regarding human behavior in general, and with regard to health care practice in particular. To encourage this understanding it is necessary to understand the current classification and etiology of behavior. Students will be encouraged to see the relevance of communication and appropriate behavioural skills to be able to effectively manage patients in a manner that provides appropriate support and understanding, in a way that protects the professional’s own well being.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

1. **Conceptual approaches to behavioural studies**
   The major conceptual approaches to investigating human behavior will be presented. These include the behavioural, psychoanalytical, humanistic, cognitive and biological paradigms.

2. **Developmental issues across the life span**
   This section will cover the major stages in human development and particular issues that are encountered within these stages. Issues will be presented in respect to difficulties encountered by health care clients/hospital patients of different age groups.

3. **Psychological functioning**
   The major psychological phenomena will be presented. These include: perception, learning, motivation, emotions, as well as health and illness behaviors.

4. **Communication and interpersonal skills**
   This section will deal with the development of communication and interpersonal skills and time management.

5. **Fundamentals of group dynamics**
   An introduction to the dynamics of group interactions will be given with an emphasis on issues that hinder or enhance the effectiveness of group work.

6. **Diagnosis, assessment and treatment of dyslexic children** (Optometry students) 6 Hrs.
7. **Patients needs and management**  
   (Radiography students) 6 Hrs.  
   Terminally ill patients: pain, dying and death, grief. Managing potentially stigmatized patients.

**Assessment**

Continuous Assessment 100%  
Breakdown:  
- Individual Assignment 40%  
- Weekly tutorial record mark x 12  30%  
- Multiple Choice Test (30 items) 30%

**Reading List**

**Indicative reading**  
(indicative means you can replace these with similar up to date books!)


and:


Also:

http://www.apa.org/

http://www.bps.org.uk/index.cfm

PsycINFO (1887+) in HKPU library, electronic resources, then data bases, then indexes & abstracts

E journals in HKPU library, electronic resources, then e-journals. Type ‘psychology’ and click ‘Go’
Subject Title : Foundation Pathology
Credits : 3
Status : Compulsory
Offering Department: OR

Students are required to have attended: Generic Anatomy (HSS201)

Teaching Pattern

<table>
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<tr>
<th>Lecture</th>
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<tr>
<td>Laboratory</td>
<td>9 hours</td>
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Learning Aims

The subject provides the students with basic concepts in principle of diseases and an overview of selected pathology topics for Hong Kong. Part of the teaching is research-based particularly in cell injury and oncology. The lecture materials are reinforced by continuous display items related to microscopy, gross museum specimens and imaging films whenever applicable.

Outline Syllabus

Principle of diseases
- Introduction to the study of the patterns, causes, mechanisms and effects of diseases
- Cellular adaptive responses to injury and in disease
- Molecular mechanisms in cell death
- Neoplasia
- Tissue responses to damage
- Developmental and genetic factors in disease
- Immune, infective, environmental and nutritional factors in disease

Pathology topics in Hong Kong
- The following are selected topics relevant to the prevalence of disease in the local area. The mode of disease pattern, causes, mechanisms, effects and complications are major topic of interest.
- Viral hepatitis
- Mortality trends in Ischaemic Heart Disease
- Cerebrovascular disease
- Glucose-6-Phosphate Dehydrogenase Deficiency
- Thalassaemia
- Systemic Lupus Erythematosus
- Glomerular diseases of the kidney
- Epidemiology of neoplasia
- Liver tumours
- Nasopharyngeal carcinoma
- Oesophageal tumours
Malignant lymphoma

**Indicative Content**

Cellular responses in acute inflammation and chronic inflammation. Selected topics in pneumonia, tuberculosis, peptic ulceration and viral hepatitis. (6 hours)

Diseases of blood vessels. Selected topics in deep venous thrombosis and coronary arterial disease e.g. atherosclerosis (4 hours)

Intracranial expanding lesions. Selected topics in cerebrovascular disease e.g. stroke (2 hours)

Spinal diseases. Selected topics in related bone diseases e.g. spondylosis (2 hours)

Diseases of the renal tract. Selected topics in renal stone formation. (2 hours)

Genetic diseases. Selected topics in chromosomal abnormalities e.g. Down’s syndrome (2 hours)

The cause of cancer with research-based discussion in molecular biology. Selected topics in lung cancer, hepatocellular carcinoma, leukemia and nasopharyngeal carcinoma. (8 hours)

The treatment of cancer. Selected topics in chemotherapy, immunotherapy and gene therapy. (2 hours)

Tutorial and demonstration sessions: lecture materials are highlighted by slides presentation, clinical case studies and museum display items which enhance student’s understanding in the pathology topic of interest.

**Assessment**

- Coursework 40%
- Examination 60%
  (2 hours written paper)

**Reading List**

**Prescribed Reading**

Lowe ASJ. Pathology. Mosby, 1995

Ho FCS, Wu PC. Topics in pathology for Hong Kong. Hong Kong University Press, 1995

**Recommended Reading**


Subject Title : Clinical Optometry 3
Code : OR310

Credits : 3
Level : 3

Status : Compulsory
Stage : 2

Offering Department: OR
Semester : 4

Students are required to have attended: Clinical Optometry 2 (OR308)
Visual Science 2 (OR315)

Teaching Pattern

<table>
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<tr>
<th>Activity</th>
<th>Hours</th>
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Learning Aims

This subject prepares the students to practise and communicate effectively in the clinical settings. The students will develop skills in operational procedures and diagnosis related to ocular health assessment. Students will develop fundamental clinical skills in optometry.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Direct ophthalmoscopy
Indirect ophthalmoscopy
Fundus biomicroscopy
Gonioscopy
Visual fields and visual field tests
Macular functions
Contrast Sensitivity Function
Colour vision
Photo-documentation

Indicative Content

Direct ophthalmoscopy: basic aspects; the appearance of the normal fundus and its variations; an introduction to the ophthalmoscopic signs of ocular disease; clinical practice of ophthalmoscopy. (3 hours)
Indirect ophthalmoscopy: Principles of indirect ophthalmoscopy; monocular indirect and binocular indirect ophthalmoscopy – instrumentation and clinical procedures; appearance of the normal fundus; abnormal changes; clinical applications of techniques. (2 hours)

Fundus biomicroscopy: Contact fundus lenses; the Hruby and Volk lenses and their principles and applications in clinical practice; fundus appearances with biomicroscopy. (2 hours)

Gonioscopy: Principles of methods; types of goniolenses, their methods of application; the appearance of the anterior angle by gonioscopy; abnormal signs in the anterior angle; three-mirror retinal evaluation. (2 hours)

Visual fields and visual field tests: Bjerrum screen; visual field screeners; principles and practice; perimetry – static and kinetic perimetry; automated perimetry; detection of visual field defects. (2 hours)

Macular functions: Various techniques to assess the integrity and functionality of the macula, including the use of Amsler Grid, the photostress test, the neutral-density filter test, the colour comparison test and the brightness comparison test. (2 hours)

Contrast Sensitivity Function: Theory and clinical use of contrast sensitivity function, contrast sensitivity function curve, commercially available contrast sensitivity charts and systems; clinical significance and interpretations of contrast sensitivity function. (1 hour)

Colour vision and colour vision tests: clinical assessment of colour vision; applications of colour vision tests; congenital vs. acquired colour vision defects; clinical manifestations of acquired colour vision defects. (2 hours)

Photo-documentation: methods of ocular photography – anterior eye and fundus. (1 hour)

Laboratory work: All lectures are augmented by appropriate laboratory work emphasizing the acquisition of basic clinical skills in the methods of optometric examination. Students will be expected to compare, contrast and evaluate examination methods, and to practice the implementation. Laboratory attendance is compulsory. All students have to actively participate in a 3-hr equivalent project (e.g. vision screening) in the community.

Tutorials: small-group discussions on clinically related topics will take place, e.g. discussion of clinical examination strategies, relationship amongst tests, and comparative evaluation of procedures.

Assessment

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coursework</td>
<td>60%</td>
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<tr>
<td>(Students must pass the laboratory assessment)</td>
<td></td>
</tr>
<tr>
<td>Examination</td>
<td>40%</td>
</tr>
<tr>
<td>(2 hour written paper)</td>
<td></td>
</tr>
</tbody>
</table>
Reading List

Prescribed Reading
Grosvenor TP. Primary Care Optometry, 4th Ed., Butterworth & Heinemann, 2002

Recommended Reading
Amos JF (ed) Diagnosis and Management in Vision Care, Butterworths, Singapore. 1987
Benjamin WJ. Borish’s Clinical Refraction. WB Saunders, Philadelphia. 1998
Subject Title : Ophthalmic Optics and Dispensing 2  
Credit : 3  
Status : Compulsory  
Offering Department: OR  
Students are required to have attended: Ophthalmic Optics and Dispensing 1 (OR307)

Teaching Pattern

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>26</td>
</tr>
<tr>
<td>Laboratory</td>
<td>20</td>
</tr>
<tr>
<td>Tutorial/Seminar</td>
<td>6</td>
</tr>
</tbody>
</table>

Total: 52 hours

Learning Aims

This subject provides the students with the knowledge of ophthalmic optics and the understanding and practical experience of ophthalmic dispensing. Students will develop the basic clinical skill of dispensing and the ability to understand properties of new ophthalmic products.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Bifocals and trifocals
Multifocals
Lens thickness considerations and calculations
Lenseffectivity
Spectacle lens design
Tinted lenses
Spectacle fitting

Indicative Content

Bifocals and trifocals : principle and terminology, optical properties and fitting of bifocals and trifocals. (3 hours)

Multifocals : principle and terminology, optical properties and fitting of multifocals. (3 hours)

Lens thickness considerations and calculations : calculation of thickness in edged lenses. (2 hours)
Lens effectivity: Effects of working distance and vertex distance on the prismatic and refractive powers in spectacles. (4 hours)

Spectacle lens design: Introduction to the principles and methods of ophthalmic lens designs. (6 hours)

Tinted lenses: Radiation and the eye; ophthalmic uses of tinted/photochromatic lenses. (3 hours)

Spectacle fitting: Factors to be considered in lens and frame selections. Principles and practical aspects of spectacle frame fitting. (5 hours)

Laboratory/workshop practice:
Measure bifocals, trifocals and varifocals with a focimeter. Marking and edging of bifocals, trifocals and varifocal lenses. Knowledge on common lens types in Hong Kong. Lens and frame selection and spectacle fitting.

Seminar and tutorial
Feedback on student progress and to provide remediation on a group/individual basis. Discussion of issues related to spectacle fitting/dispensing will be conducted.

Assessment

Coursework 40%
Examination 60%
(2 hour written paper)

Workshop practice will be assessed continuously and by practical tests. Students are required to pass the practical component in order to pass the overall subject.

Reading List

Prescribed Reading


Recommended Reading


Subject Title: Visual Science 4  
Code: OR314  
Credits: 3  
Level: 3  
Status: Compulsory  
Stage: 2  
Offering Department: OR  
Semester: 4  

Students are required to have attended: Anatomy for Optometry (OR206)

Teaching Pattern

Lecture: 28 hours  
Laboratory: 18 hours  
Tutorial: 5 hours  

51 hours

Learning Aims

This subject provides students with essential knowledge in the understanding of visual psychophysics and visual perception. The students will understand the psychophysical measurement in vision science, and the different mechanisms of vision. The subject introduces the students the principles and application of colorimetry.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Psychophysics of measurement  
Spatial vision  
Temporal vision  
Introduction to Colorimetry  
Visual perception

Indicative Content

Psychophysics of measurement: frequency of seeing, signal detection theory, ROC curves, visual threshold, signal and noise, criterion-dependent and criterion-independent methods (4 hours)

Spatial vision: spatial resolution, spatial contrast sensitivity, spatial orientation, spatial localisation, hyperacuities (4 hours)

Temporal vision: temporal resolution and flicker, de Lange curve, spatio-temporal characteristics of vision (6 hours)
Colour vision: spectral sensitivity, wavelength discrimination, colour matching, colour contrast, defective colour perception, classical and recent theories of colour vision, design of colour vision tests (8 hours)

Visual perception: sensation and perception, theories of perception, perception of space, form and motion, constancies, factors affecting perception (6 hours)

Laboratory work is designed to reinforce aspects of the syllabus experimentally in neural functions, brightness discrimination, spatial resolution, temporal functions, dark adaptation, and colour vision. (18 hours)

Tutorials will be used to provide remediation for individual students when necessary (5 hours)

Assessment

Coursework 50%
Examination 50%
(2 hour written paper)

Reading List

Prescribed Reading

Recommended Reading


Subject Title : English in the Workplace  
Credits : 3  
Status : Compulsory  
Offering Department: ELC  
Students are required to have attended: English for Academic Purposes (ELC206)  

Teaching Pattern  
Seminar  
42 hours  

Learning Aims
To develop those English language skills required by the students to communicate effectively in their future professional careers.

Outline Syllabuses
This syllabus is indicative. The balance of the components, and the weighting accorded to each will be based on the specific needs of the students.

1. **Language appropriacy:** introducing notions of context-sensitive language use in both spoken and written English; for example, writing e-mails and using the telephone.

2. **Seeking and supplying information:** practice in the oral skills required in fact-finding and job-seeking interviews, problem-solving negotiations, and conducting questionnaire surveys.

3. **Workplace writing:** selecting and using relevant content; appropriate style; acceptable format; structure and layout, in letters, memoranda, reports, notices for public display, proposals, presentation notes, forms and questionnaires.

4. **Language development:** improving and extending relevant features of students’ grammar, vocabulary and pronunciation.

Throughout this subject, continuing attention will be paid to grammar, vocabulary and pronunciation.
Indicative Content

The subject is designed to introduce students to the kinds of communication skills both oral and written that they may be expected to need in their future professions. These skills will be necessary for successful employment in any company/organisation where internal and/or external communication is conducted in English.

The study method is primarily based on seminars. These will include discussions, role-play, individual and group activities. Use will be made of video and tape recordings, library research, and our Centre for Independent Language Learning. Students in need of additional help will be required to attend a supplementary English programme organised by the English Language Centre.

Assessment

Continuous Assessment 100%

Reading List

General


Grammar, vocabulary and style


Learning and Teaching Materials

*English in the Workplace* published by the English Language Centre, the Hong Kong Polytechnic University and specially prepared material from the Centre will be used throughout the course. In addition, teachers will recommend additional reference materials as required.
Subject Title: Clinical Binocular Vision  
Code: OR415

Credits: 3  
Level: 4

Status: Compulsory  
Stage: 3

Offering Department: OR  
Semester: 5

Students are required to have attended: Visual Science 2 (OR315)

Teaching Pattern

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>28</td>
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<td>Laboratory</td>
<td>10</td>
</tr>
<tr>
<td>Tutorial/Seminar</td>
<td>10</td>
</tr>
</tbody>
</table>

Total: 48 hours

Learning Aims

This subject provides the students with clinical knowledge and understanding of the theories of sensory adaptation and the development of anomalies in binocular vision. Students will develop an understanding of the clinical procedures and the skills required for the effective clinical management of patients with binocular anomalies.

This subject will form the foundation for the students during their clinical training in the Vision Training Clinic in their final year.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Vision therapy concepts  
Heterophoria and its management  
Accommodation and convergence anomalies  
Heterotropia  
Sensory adaptations  
Comitant strabismus  
Incomitant strabismus  
Management of strabismus  
Nystagmus

Indicative Content

Vision therapy procedures and instrumentation: synoptophore, synoptoscope, stereoscopes, anaglyphs, physiological diplopia techniques and their application.  
(4 hours)
Heterophoria: aetiology and classification; clinical signs and symptomology; compensation and decompensation; factors affecting compensation; investigation of compensation; fixation disparity; management of heterophoria problems - effect of the refractive correction, visual therapy and prismatic therapy, prognosis.

Accommodation and convergence anomalies: accommodation and convergence excess and insufficiency, investigation and management.
(6 hours)

Heterotropia: aetiology and classification; comitance and incomitance.

Sensory adaptations: development of sensory adaptations in strabismus; amblyopia, eccentric fixation, anomalous correspondence, suppression - clinical signs and investigations.

Management of comitant strabismus and sensory adaptations: occlusion therapy, pleoptics, antisuppression training, restoration of normal correspondence; training the motor angle of strabismus; selection of cases for treatment and prognosis; pre and post surgical orthoptics; role of the refractive correction and prisms.

Management of incomitant strabismus: development of motor adaptations; clinical signs and investigations; indications for referral; optometric management.
(16 hours)

Nystagmus: latent and manifest nystagmus; forms of nystagmus, clinical investigation and significance; optometric management.
(2 hours)

Laboratory work: to introduce techniques and instruments applicable to the investigation and management of strabismus, vision therapy techniques; "real" patients may be brought in for demonstration of clinical techniques from time to time.

Seminars: Student-led discussions on the relative merits of treatment strategies for patients with binocular anomalies. These will relate to the lecture material, student background reading and case analysis from clinic records.

Assessment

| Coursework | 40% |
| Examination | 60% |
| (2 hour written paper) |

Reading List

Prescribed Reading


Recommended Reading

Caloroso EE, Rouse MW. Clinical management of strabismus, Butterworth-Heinemann, 1993


Subject Title : Contact Lens Practice  
Code : OR423
Credits : 6  
Level : 4
Status : Compulsory  
Stage : 3
Offering Department: OR  
Seminers : 5 & 6

Students are required to have attended:  
Ocular Physiology (OR209)  
Visual Science 2 (OR315)  
Ophthalmic Optics & Dispensing 2 (OR311)

Teaching Pattern

<table>
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<tr>
<th>Teaching Pattern</th>
<th>Hours</th>
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<td>Lecture</td>
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<td>Tutorial</td>
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</table>

Learning Aims

To teach students the concepts, terminology and principles related to contact lenses, and clinical skills necessary to prepare the student for clinical contact lens practice in the final year; to encourage/facilitate bridging of theory to practice and reflection through the use of case study and reflective writing.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Corneal shape and measurements  
Corneal physiology and lens wear  
Solutions and stains  
Soft lenses  
Complications of contact lens wear – ocular & lens (deposits)  
Contact lens consultations  
Lens verification  
Properties of contact lens materials  
Optics  
Rigid and gas permeable rigid lenses fitting  
Astigmatism and contact lenses  
Extended wear lenses  
Cosmetic contact lenses  
Contact lenses for presbyopes and keratoconus
Indicative Content

Topics

Introduction to contact lenses, indications and contra-indications for contact lens wear (2 hours)

Cornea, corneal shape (topography) and the use of the keratometer in contact lens practice; sources of error; contact lens terms (3 hours)

Rigid contact lens materials; oxygen permeability and transmissibility; wettability; water absorption (1 hour)

The tear film and blinking: effects of normal blinking on lens wear, tear exchange and lens rotation; abnormal blink patterns and their effects; and the effect of lens wear on the tear film; tear function tests and their significance (2 hours)

Solutions and stains: preservatives used in contact lens solutions; solutions necessary for the care of all types of contact lenses; use of stains in contact lens practice; sodium fluorescein (4 hours)

Soft lenses: lens designs; specific indications and contraindications; fitting principles and assessment of fit; effect of altering parameters; optimum fitting criteria (4 hours)

Management of contact lens complications:
- contact lens spoilage and preventative measures (2 hours)
- ocular complications: signs, symptoms, etiology, treatment and prognosis (6 hours)

Consultations: functions and procedures
- Preliminary, fitting and delivery visits (2 hours)
- Aftercare routines (stress on slit lamp examination) (2 hours)

Verification: measuring BOZR and other radii, diameters, thickness, back vertex power; measuring water content; examining edges and surfaces

Optics of contact lenses: the tear/cornea lens system; residual astigmatism; magnification and accommodation with contact lenses and their implications (2 hours)

Rigid lens fitting philosophies and designs; fluorescein patterns; common fitting techniques; forces acting on the lens/eye (4 hours)

Gas permeable rigid lenses: objectives; specific indications and contraindications; trial sets and initial lens selection; fluorescein pattern; assessment of lens fit; over-refraction; the effect of altering parameters; optimum fitting criteria (6 hours)

Astigmatism and contact lenses: RGP and soft toric lenses (4 hours)

Extended wear and disposable lenses: patient selection and management; fitting philosophies, soft versus RGP; management (2 hours)

Lenses for presbyopic and keratoconus patients; cosmetic contact lenses (4 hours)
**Laboratory work**

Laboratory sessions function as a preliminary to contact lens clinical practice for the development of knowledge and skills in keratometry, tear function tests, pachometry, soft/rigid lens handling, verification, insertion, removal, fitting assessment, and examination routines applicable to contact lens practice.

**Tutorials**

Areas of weakness, as identified through continuous assessment or by the students themselves, will be dealt with in tutorials. Case studies will be used to bridge theory and practice. Work will be on a class, small group or one-to-one basis as required. Group discussion and contributions will be encouraged.

**Sit-in Contact Lens Clinic**

To help students prepare for CLC in their final year, CLC sit-in will be arranged and students will be required to submit a Reflective Diary.

**Assessment**

<table>
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<tr>
<th>Coursework</th>
<th>70%</th>
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<tr>
<td>Examination</td>
<td>30%</td>
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<tr>
<td>(3-hr written paper)</td>
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</tbody>
</table>

To pass the subject, the student has to pass both Final Examination and Coursework. To pass coursework, the student has to obtain a passing mark and pass the practical test.

**Reading List**

**Prescribed Reading**


**Recommended Reading**

Larke J. The Eye in Contact Lens Wear. Butterworths, 1985

Subject Title   : Optometry Specialisms  
Credits   : 3  
Status   : Compulsory  
Offering Department: OR  
Teaching Pattern  

<p>| | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td>Lecture</td>
<td>34 hours</td>
</tr>
<tr>
<td>Laboratory</td>
<td>12 hours</td>
</tr>
<tr>
<td>Field Study</td>
<td>9 hours</td>
</tr>
</tbody>
</table>

55 hours

Learning Aims

Students will understand the clinical manifestation and characteristics of three specialised areas, i.e. paediatric optometry, geriatric optometry and low vision care. They will learn to recognise the signs and symptoms, and thus develop skills in the investigation and management effectively. Upon completion of this subject, the student will be able to examine, evaluate and manage the cases clinically.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Paediatric Optometry
Visual and refractive development and norms
Clinical examination of children
Management of visual problems in children

Low Vision
Visual impairment defined
Examination of the low vision patient
Optical aspects of low vision aids

Prescription techniques of low vision aids
Management of low vision patients
Low vision services in Hong Kong
Recent research

Geriatric Optometry
Anatomic and physiologic change with age
Changes in visual functions with age
Examining the aging patient
Aphakia and pseudophakos
The housebound or bedridden patient
Indicative Content

**Paediatric Optometry**

Refractive norms and measuring refractive error in infants and young children  
Norms and measurement of visual acuity and other visual parameters  
Genetic and environmental factors in myopia  
Vision and learning problems  
Management of visual problems in children (case studies)  
(10 hours)

**Low Vision**

Visual impairment defined: legal, medical and social definitions; prevalence and incidence; causes of visual impairment  
Examination of the low vision patient: visual acuity assessment; clinical expectations of visual acuity; refraction and the refractive correction; other investigations including visual field and contrast sensitivity  
Magnification and low vision aids: principles of magnification; optical principles of magnifiers and telescopic aids; types of low vision aids available; clinical assessment of low vision aids; training and applications of low vision aids  
(8 hours)

Management of low vision patients: the multi-disciplinary approach; rehabilitation services; the optometrist in the multi-disciplinary team  
Low vision services in Hong Kong: current services; future planning and projection  
Recent research: clinical applications of recent research into low vision causes and management  
(4 hours)

**Geriatric Optometry**

Anatomic and physiologic change with age: changes in ocular structure with particular reference to retina and lens; development of cataract and age-related maculopathy; clinical implications of age related changes  
Changes in visual functions with age: effects upon visual acuity, colour vision, adaptation, contrast sensitivity, visual field; changes in binocularity  
(6 hours)

Examining the aging patient: effects of common systemic and ocular diseases; aims and goals of the examination; amendments to routine to account for change in visual function  
Aphakia and pseudophakos: advantages and disadvantages of aphakic corrections; types of aphakic correction; problems of the newly corrected aphake; the pseudophakic eye post operatively; types of pseudophakic correction; complications of pseudophakos
The housebound or bedridden patient: optometric examination; role of the optometrist in institutional care; domiciliary visits
(6 hours)

Laboratory work: demonstration of the different tests used in paediatric patient examination; the simulation of various low vision conditions, and the prescription and evaluation of distance and near aids; mobility requirements for the visually handicapped
(12 hours)

In addition to laboratory work, 3 field trips will be taken to the Hong Kong Society for the Blind and the Ebeneezer School for the Blind (9 hours)

Paediatric and senior patients will be seen in the Optometry Clinic in semesters 7/8.

Assessment

Coursework 40%
Examination 60%
(3 hour written paper)

Reading List

Prescribed Reading


Faye E. Clinical Low Vision, 2nd ed. Little Brown, 1984

Recommended Reading


Weale RA.  A Biography of the Eye, H.K. Lewis, 1982

Amos J.(ed).  Diagnosis and Management in Vision Care, Butterworths, 1987


Teaching Pattern

Lecture 54 hours

Learning Aims

This subject provides information on the signs and symptoms of primary and secondary eye diseases encountered in private and hospital practice. The students should be familiarised with the appropriate action to be taken when ocular disease is recognised and the proper inter-professional referral procedures. Students will be learned the instruction on ocular first aid and the management of ocular emergencies by the optometrist. The subject helps the students to develop a problem-solving approach to diagnosis.

Outline Syllabus

Diseases of the eyelids and the lacrimal system
Conditions of the orbit and orbital structures
Corneal and conjunctival problems
Diseases of the sclera and uveal tract
Crystalline lens and cataract
Diseases of the vitreous and retina
Glaucoma
Ocular signs of systemic diseases
Ocular injury and trauma
Neuro-ophthalmology
Clinical aspects of ultrasound, CT and MRI
Conditions requiring immediate referral
Refractive surgery

Indicative Content

Eyelids/lacrimal system: signs and symptoms of inflammation, trauma, and degeneration; differential diagnosis of congenital anomalies; optometric action
Orbit: congenital and developmental anomalies; signs and symptoms of inflammatory and toxic conditions; signs and symptoms of orbital trauma.
Proptosis. Tumours affecting the eyes and ocular adnexae.
(6 hours)
Anterior segment: congenital anomalies of the anterior segment; inflammatory and toxic conditions; degenerative and dystrophic conditions; differential diagnosis of the red eye; optometric management
Uveal tract: differential diagnosis of uveitis; complications and secondary effects; atrophic and degenerative changes; related neoplasm; optometric management
(12 hours)
Crystalline lens: differential diagnosis of lenticular anomalies; signs and symptoms of cataract; senile cataract; secondary cataract; complications and management; optometric management
Vitreous and retina: vascular anomalies; inflammatory conditions; retinal detachment; degeneration and dystrophies; laser and cryotherapy treatment; congenital and developmental conditions; trauma and foreign bodies; optometric involvement
(12 hours)
Glaucoma: definition and incidence; review of aqueous physiology and angle anatomy; signs, symptoms and investigative techniques; secondary glaucoma; suggested criteria for referral
(6 hours)
Headaches. Decrease in visual acuity of acute and chronic onsets.
Ocular manifestations of systemic disease - signs and symptoms; optometric management
Ocular injury - definition; ocular first aid; optometric management
(6 hours)
Neuro-ophthalmology - review of anatomy, physiology, and retinotopic visual field organisation; symptoms, and investigative techniques of visual field loss: signs and symptoms of optic nerve disease; pupillary pathway; pupillary tests; congenital and developmental pupillary anomalies; differential diagnosis of pupillary defects; neuro-ophthalmic signs of AIDS
Ultrasound, computerised tomography and magnetic resonance imaging: clinical application; differential diagnosis; investigative techniques
Immediate referral: recognition of conditions requiring immediate referral; necessary action
(8 hours)
Different techniques in refractive surgery. Complications and management of post-refractive surgery
(2 hours)

Assessment

Coursework 40% (written assessments and quizzes)
Examination 60% (3 hours written paper)

Reading list

Essentials


Supplementary
Alexander LJ. Primary Care of the Posterior Segment. 2nd ed. 1994 Appleton & Lange.


Subject Title : Clinical Optometry 4          Code : OR443
Credits : 3          Level : 4
Status : Compulsory       Stage : 3
Offering Department: OR          Semester : 5

Students are required to have attended:  Clinical Optometry 3 (OR310)
                                      Visual Science 4 (OR314)

Teaching Pattern

  Lecture 21 hours
  Laboratory 36 hours
  Tutorial 4 hours

  58 hours

Learning Aims

This subject continues the clinical training of the student by introducing more specialized
techniques of optometric evaluation and in management of clinical cases.

Student would be acquainted with the procedures and operations of techniques in
specialized areas of clinical investigation and able to evaluate the effectiveness of the
various optometric techniques.

Students would also develop skills in integrating information collected during an
optometric consultation and able to communicate with patients effectively so as to provide
appropriate patient management.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Electrophysiology
Ultrasonography and other imaging technique
Case history taking and symptomatology and headache
Advanced Optometric Investigation
Prescription decisions
Clinical case management
Inter- and intra-profession communication

Indicative Content

76
Electrophysiology: principles and applications of visual electrophysiological techniques in optometric practice. (2 hours)

Ultrasonography and other imaging techniques: Principles and applications of A-scan, B-scan and ultrasound Pachymetry in clinical optometric practice. (2 hours)

Advanced Optometric Investigation: Principles and clinical applications of new optometric instruments; such as Nerve Fibre Analyzer (NFA); Orbscan system; Ocular Blood Flow (OBF) and Optical Coherence Tomography (OCT). (4 hours)

Case history taking and symptomatology: Role of the case history in the consultation; questioning techniques and question types; what comprises a case history; recording the history; symptomatology – an overview of symptoms found with various forms of ocular problems (refractive, binocular, organic). (3 hours)

Headaches: Clinical presentations of headaches; various causes of headaches; management of patients with headaches as the chief complaint in an optometric practice. (2 hours)

Prescription decisions: Etiology of refractive errors and the influence of etiological theories on the refractive prescription and monitoring the refraction; relating the prescription to the occupational and other needs of the patient. (2 hours)

Clinical case management: Present simulated and real clinical cases to build up problem solving techniques in case management. (4 hours)

Inter- and intra-profession communication: Discussion on handling of inter- and intra-professional relationships. The skill of communicating information amongst professionals. How to write referral letters. (2 hours)

Laboratory work: Lectures are accompanied by appropriate laboratory work for the development of skills in these areas of optometric investigation. As part of laboratory work, students will be expected to evaluate the relative merits of the procedure and its applications. Lab attendance is compulsory. Students must pass the laboratory component in order to pass the subject.

At the end of the laboratory session, students will be assessed on their skills on performing a primary eye care examination (clinical competency evaluation). This is to prepare them better before starting to see patients in the following semester.

Tutorials: Tutorial sessions, in the form of small, student-led groups, will discuss and evaluate various clinical techniques. Case study techniques will be used where appropriate. Tutorials will thus supplement both lecture and laboratory work.
Assessment

Coursework 60 %
(including a practical assessment. Students must pass the practical assessment and clinical competency evaluation in order to pass the subject)

Examination 40 %
(2 hours written paper)

Reading List

Prescribed Reading


Recommended Reading


Subject Title : Professional Studies
Code : OR445
Credits : 3
Level : 4
Status : Compulsory (MI & RT Streams/Optom)
Stage: 3
Offering Department: OR
Semester : 5

Teaching Pattern

- Lectures: 6 hours
- On-line lectures: 10 hours
- Tutorials: 12 hours
- On-line tutorials: 8 hours

Total: 36 hours

Learning Aims

This subject emphasises a student-centred approach and further development of independent learning skills. By means of lectures, tutorials, self-study, and on-line learning, students will be introduced to ethico-legal concepts and theories in healthcare and will be guided so as to view their patients both from the patient’s perspective, as well as from a professional view-point. Students will learn to apply moral and ethical principles to decision-making and become cognisant of patient rights issues, professional issues and how to safeguard their own interests as well as those of the patient, with regards to medical negligence claims. The importance of professional standards and professional development will be clearly spelt out.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

- Introduction to legal system in Hong Kong
- Biomedical ethics
- Medical negligence
- Consent
- Confidentiality and privacy issues
- Professional issues
- ICAC lecture

Assessment

- Continuous assessment: 100%
  - Group debate: 50% (Optometry & Radiography)
  - Reflective Writing: 50% (Radiography)
  - Written assignment: 25% (Optometry)
  - Written test: 25% (Optometry)

Assessment for Case-based Learning for Professional Studies will consist of continuous assessment, comprising of the above components. For the debate, students will be expected to analyse and evaluate an ethico-legal case, so as to show an understanding of the topic being considered, and demonstrate that they can apply the ethico-legal concepts
they have learnt. As well as gaining an overall group grade (30%), students will also be
graded individually within tutorial sessions, during preparation time for the debate, so as
to generate a grade allocation for each student’s performance and contribution (20%).

For Radiography students, the written assignment will take the form of a reflective
journal, whereby students will document either a real-life, ethico-legal case from their
own clinical experience, or a hypothetical one, in order to clarify issues relating to law and
ethics.

For Optometry students, the written assignment is an essay (by individual students) on any
topic related to professional issues. Students can decide on their own topic, but a list of
suggested topics will be provided for students, to facilitate their decision-making. Students
will also be required to sit a test on ethico-legal issues.

Reading List

American Optometric Association. St. Louis, Missouri

Oxford: Oxford University Press


Press

Heinemann


Cambridge University Press.

Limited.


Science Ltd.

Foster ,C. (2001). The ethics of medical research on humans. Cambridge University
Press.


Informa UK Limited.

Monitor Press.

Maxwell.


**Clinical journals:**
Medical Law Monitor (CLR: K13. E34)
Journal of Medical Ethics (CD Rom)
Relevant Professional (peer-review) journals

**Access pathway (via the Library Homepage – Social Sciences & Humanities: Law):**
Hong Kong Law Reports and Digest
Hong Kong Cases
All England Reports
Lloyd’s Electronic Law Reports

**Useful e-mail addresses:**
www.ha.org.hk
www.gmc-uk.org
www.austlii.edu.au
www.hkma.com.hk
www.info.gov.hk
www.open.gov.uk/doh/dhome.htm
www.justice.gov.hk/Index.htm
www.doh.uk/coinh.htm
www.echr.coe.int
Subject Title: Optometry Clinic 1  
Code: OR419

Credits: 2  
Level: 4

Status: Compulsory  
Stage: 3

Offering Department: OR  
Semester: 6

Pre-requisites: 1. Clinical Optometry 4 (OR443)

2. Clinical refresher workup* if Clinical Optometry 4 (OR443) was completed six months ago or longer

Teaching Pattern

<table>
<thead>
<tr>
<th>Clinic Practice</th>
<th>42 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispensing Practice</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

46 hours

Learning Aims

This subject provides the students with clinical knowledge and experience of optometric examination/investigation. Students will acquire the ability to transfer academic knowledge to clinical practice, to convert the knowledge of optometric procedures into a routine suitable for the examination of patients and to perform appropriate patient management. Students will be able to provide advice on spectacle frame and lens selection according to patients’ need and carry out spectacle fitting adjustments.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Patient examination
Application of clinical procedures
Spectacle frame dispensing and adjustment

Indicative Content

Patient examination – performing full vision examinations on patients of the Optometry Clinic, Hong Kong Polytechnic University.

Application of clinical procedures - performing additional clinical procedures as required in the management of patients.

Frame and lens selection, fitting and delivery of spectacles to patients.
Assessment

Coursework 100%

* The “clinical refresher workup” comprises a series of sit-in observations and assessment of clinical techniques in The Optometry Clinic. It aims to maintain the student the knowledge in current clinical care. The student must complete this clinical refresher workup satisfactorily to enable him/her to register for this subject.

Reading List

Prescribed Reading

Benjamin, W.J., Borish, I.M. Borish's clinical refraction, W.B. Saunders, 1998


Recommended Reading

Ball GV. Symptoms in Eye Examination. Butterworths, 1985

Amos J. Diagnosis & Management in Vision Care. Butterworths, 1987
Learning Aims
This subject will cover the general principles of the action of pharmaceuticals, pharmacodynamic and pharmacokinetic. It helps our students to develop an appreciation of the pharmacological actions, interactions of pharmaceuticals, side effects and adverse reactions of ophthalmic pharmaceuticals used for diagnostic and therapeutic purposes.

Students will learn the signs and symptoms in adverse reactions and to provide guidance on the safe use of ophthalmic pharmaceuticals. The cardio-pulmonary resuscitation will be covered by St. John Ambulance Association.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

General pharmacology
Sources of pharmaceuticals
Routes of the administration of pharmaceuticals
Absorption and distribution of pharmaceuticals
Biotransformation of pharmaceuticals
Elimination of pharmaceuticals
Modes of action of pharmaceuticals
Receptor and rate theory
Aspects of ophthalmic pharmaceuticals, forms and methods of administration
Principal requirements of ophthalmic preparations
Factors affecting efficacy and stability of ophthalmic preparations
Preservatives
Legal classification of pharmaceuticals in Hong Kong
Ocular pharmacology

Fate of transmitter substances and their action in the eye
Factors affecting penetration of pharmaceuticals in the eye
Classification of ophthalmic pharmaceuticals
Miotics
Mydriatics
Cycloplegics
Local Anaesthetics
Staining agents
Antihistamines and vasoconstrictors
Ocular therapeutic agents
Systemic side effects of ocular pharmaceuticals
Ocular side effects of systemically administered pharmaceuticals

C.P.R.
Recognition of the signs and symptoms of a heart attack
How to provide CPR until medical help arrives
How to give first aid for choking

Indicative Content

General pharmacology

Introduction to pharmacology and pharmaceuticals sources - scope of pharmacology; plants, animals, minerals, micro-organisms, and chemical synthesis as sources of pharmaceuticals.

Routes of drug administration of pharmaceuticals - enteral, parenteral, topical, transdermal, and sublingual administration. Factors affecting route of administration, and relative merit of one route over the others.

Absorption and distribution of pharmaceuticals - factors affecting absorption and distribution of pharmaceuticals: pH-partition theory, physio-chemical properties of pharmaceuticals; host factors.

Biotransformation of pharmaceuticals - phases of metabolism of pharmaceuticals, factors affecting metabolism of pharmaceuticals, prodrugs.

Elimination of pharmaceuticals - degradation of pharmaceuticals, systems involved in elimination and excretion of pharmaceuticals, routes of elimination, factors affecting elimination of pharmaceuticals.

Modes of action of pharmaceuticals - extracellular, intracellular, receptor and rate theories in the mechanism of action of pharmaceuticals.

Aspects of ophthalmic pharmaceuticals, form and methods of administration - dosage forms, oclusert, principal requirements of ophthalmic preparations, factors affecting efficacy and stability of ophthalmic preparations.
Preservatives - preservatives commonly used in ophthalmic preparations, physio-chemical and antimicrobial properties, side effects and interactions.

Legal classification of drugs in Hong Kong - Pharmacy and Poisons Ordinance, Antibiotic Ordinance, Dangerous Drugs Ordinance and their Regulations, part I and part II poisons. (20 hours)

Ocular pharmacology

Review of the autonomic nervous system, innervation of the eye, neuronal transmitters in the eye and their interactions with receptor subtypes.

Fate of transmitter substances and their action in the eye - biotransformation of acetylcholine and norepineprine. Receptor types and their distribution in ocular tissues. Factors affecting penetration of pharmaceuticals in the eye - physio-chemical properties of the pharmaceuticals, morphological structure of the corneal, drainage system of the eye, vasculature of the eye. Methods and frequency of administration of pharmaceuticals.

Classification of ophthalmic pharmaceuticals - classification of pharmaceuticals according to their main pharmacological action on the eye.

Cycloplegics and mydriatics - anticholinergics cycloplegic agents; direct and indirect acting sympathomimetic and anticholinergic mydriatic agents, and their side effects.

Miotics - parasympathomimetics, sympatholytics, anti-cholinesterases, and their side effects.

Local anaesthetics - mechanisms of action, types of anaesthetics, biotransformation of anaesthetics, and their side effects.

Staining agents - staining properties of fluorescein and rose bengal, and side effects. (12 hours)

Antihistamines and vasoconstrictors - histamine -H1 and -H2 receptors, introduction to allergic responses, types and classifications of ocular anti-allergic agents.

Ocular Therapeutic agents - types and classification of individual groups of pharmaceuticals, modes of action, conditions under which they are to be used, side effects and precautions in use: antibiotic, corticosteroid, non-steroid anti-inflammatory drugs, anti-glaucoma pharmaceuticals.

Systemic side effects of ophthalmic pharmaceuticals - ocular absorption of topically applied pharmaceuticals, factors contributing to excessive accumulation of pharmaceuticals, types of adverse reactions of pharmaceuticals, precautions and contra-indications in the use of ocular medications.

Ocular side effects of systemically administered pharmaceuticals - therapeutic agents that induce ocular side effects, dose dependence and idiopathic ophthalmic adverse reactions to pharmaceuticals, interaction between ophthalmic and systemically administered pharmaceuticals, drug-related ocular emergencies. (6 hours)
CPR

The St. John's Ambulance Brigade will provide three hours of instruction in cardio-pulmonary resuscitation. This will comprise emergency action principles; contacting emergency services in Hong Kong; mouth-to-mouth resuscitation (mannikin practice) for adults, children and babies; signs of choking - action in conscious and unconscious adults, children and infants; recognition of cardiac arrest and action to be taken; recognition of stroke and action to be taken.

Assessment

Coursework 40%
(Two 1-hour written assessments)

Examination 60%
(3 hours written paper)

Assessment in CPR will be on a pass/fail basis and student will be required to work until a pass is obtained.

Reading List

Prescribed Reading


Recommended Reading


Subject Title : Community Optometry
Code : OR421
Credits : 2
Level : 4
Status : Compulsory
Stage : 3
Offering Department: OR
Semester : 6

Teaching Pattern

Lecture 26 hours
Field work 4 hours

30 hours

Learning Aims

This subject provides the students with the knowledge and application of ergonomics as they relate to vision and visual tasks, and an understanding of occupational/sports ocular hazards and ocular protection. Students will be able to give appropriate advice on related issues. This subject also provides the students with an understanding of the roles of optometrists in the provision of health care.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Role of optometrists in the community
Visual screening
Visual ergonomics and lighting
Visual display terminal
Visual hazards and ocular protection in occupations and sports

Indicative Content

Role of the optometrist in the community: the optometrist as a primary care provider; his role in the prevention and modification of occupational problems. (3 hours)

Visual screening : the development of visual screening programmes; cost effectiveness of vision screening and its relation to incidence of disease; screening protocols and regimen; visual screeners. (10 hours)

Lighting and visual ergonomics: human visual capabilities and analysis of visual demand in visual tasks; visual requirements for different occupations; visual fatigue and its relation to visual task and visual demand; introduction to the basic concepts in lighting design. (6 hours)
Visual hazards in occupations and sports: the nature and types of occupational/sports eye injuries and their prevention; types and uses of protective eyewear; radiation hazards in industry and their prevention. (4 hours)

The visual display terminal: the visual display unit, its visual demands, its related eye problems, their causes and solutions. (3 hours)

**Assessment**

| Coursework | 100% |

**Reading List**

**Prescribed Reading**


**Recommended Reading**

Shingleton BJ, Hersh PS & Kenyon KR. Eye Trauma. Mosby, St. Louis, 1991


Workstation design for current office environments. American Society of Safety Engineers, 1985
Teaching Pattern

Lecture  42 hours

Learning Aims

To introduce the student to basic business management and accountancy principles and to the legal implications of optometric practice.

Outline Syllabus

Business Management
Practice establishment and development
Stock control and costing
Staffing and staff relations
Business computerisation

Legal Aspects
An introduction to the legal system
Legal forms of business organisations
Formation and performance of contracts
Statutory control of contracts for the sale of goods, services and employment

Accounting Principles
Sources of finance
Bookkeeping and cash flow
Taxation and taxation planning

Indicative Content

Business Management
Starting a practice; practice development: management and marketing concepts; characteristics of optometry retailing in Hong Kong; understanding retailing components; location and site planning; access; traffic flow; practice layout design; sales promotion and advertising; merchandising; development policies

Stock control and costing: inventory records and inventory control; costing principles; retail security

Staffing and staff relations: recruitment and training of staff; human relations, motivation, leading and communication; staff development; performance appraisal
Business computerisation: the use of computer support in business management, inventory control and accounting; consumer research.
(14 hours)
Legal Aspects
An introduction to the legal system: civil law and criminal law distinguished, the origins and interaction of common law and statute law, the court system (1 hour)

Legal forms of business organisation: sole traders, partnerships and companies - their nature, the process of forming and the extent to which their activities must be disclosed to the government authorities and to the general public (2 hours)

Formation and performance of contracts: the essential ingredients of a contract, legality and restraint of trade, misrepresentation, breach of contract, remedies for breach (5 hours)

Statutory control of contracts for the sale of goods, services and employment: statutory implied terms, control of exemption clauses and the protection of consumers and employees (3 hours)

The tort of negligence: the principles of liability for negligence. The liability of manufacturers and employer's vicarious liability. Professional liability. (3 hours).

Accounting Principles
Sources of finance: sources and methods of financing the establishment or expansion of a practice; leasing; hire purchase; relative advantages and disadvantages of forms of finance

Bookkeeping and cash flow: methods of bookkeeping in practice; ledgers and journals; preparing cash flow summaries and projections; maintenance of cash flow; break-even point and its projection; profit and loss statements; computers in accounting

Taxation and taxation planning: advantages and disadvantages of sole proprietorship, partnership, and company structure; personal and business taxation; taxation planning (14 hours)

Assessment
Coursework 100%

Reading List
Recommended Reading
Association of Optical Practitioners. Financial Management; Personnel and Management; Marketing. AOP Services Ltd/TRACE (Wigan College of Technology) 1988 (These books are produced by the Association of Optical Practitioners for its Practice Enhancement Plan)
Subject Title : Project 1
Credits : 6*
Status : Compulsory
Offering Department: OR
Students are required to have attended: Applied Statistics and Research Methodology (OR376)

Teaching Pattern
Project 14 hours

Learning Aims
The student will work through a research project, from problem identification to the production of a research report.

Outline Syllabus
There is no formal syllabus for this subject. A detailed description of the operation of Project is provided to students and project supervisors.

Assessment
Continous assessment 100% - Literature Review 20%; Project Report/Poster 80%
Assessment for this subject is shown only when the student has completed Project 3.

Reading list
Journals related to the chosen topic

Prescribed Readign

Recommended Reading
Teaching Pattern

Seminar 42 hours

Learning Aims

This course aims at fostering students’ competence in written expressions including general and practical writings through practice, commentary and discussion.

Outline Syllabus

After completing the course, students are expected to:
1. master the basic writing skills to produce fluent and precise writings for vocational purposes;
2. be able to apply the relevant language and presentation skills for narrative, descriptive and argumentative writings;
3. be able to write various kinds of practical writing in relation to business planning, promotion, administration and management.
4. possess the ability to read and analyse essays of different styles; and
5. be able to learn independently.

Indicative Content

Unit 1 Basic writing and organization skills training
Unit 2 Setting up a business: letter of intention and proposal
Unit 3 Marketing and promotion: letter of direct-sale
Unit 4 Business management: report writing
Unit 5 Business administration: official letter
Unit 6 Comprehensive language skills training and self-learning strategies

Assessment

Continuous Assessment 100%
Coursework (60%)
Term-end test (40%)
Attendance

If attendance of the subject falls below 70%, only 80% of the total marks would be counted towards the final grade.

Reading List

1. 《實用寫作描寫手冊》編寫組：《實用寫作描寫手冊》, 北京, 中國文史出版社, 2003年。
2. 陳耀南：《應用文大全》, 香港, 讀者文摘遠東有限公司, 1998年。
3. 于成鯤等：《現代應用文》, 上海, 復旦大學出版社, 1996年。
4. 王蔚良、陳興邦：《商務應用文》, 香港, 香港國際名家出版社、上海書局有限公司, 1998年。
5. 李錦昌：《現代商業傳意大全》, 香港, 優務印書館, 2000年。
6. 香港貿易發展局中文事務組編：《中國貿易應用文》, 香港, 三聯書店, 1994年。
7. 香港管理專業協會編：《最新國內商業信札》, 香港, 勤+緣出版社, 1994年第二版。
8. 蔣希寧、顧成子：《現代銀行應用文》, 香港, 香港銀行學會, 1988年。
9. 談鴻嶙、鄭兆玲：《活學活用應用文》, 香港, 香港教育圖書公司, 2003年。
10. 盧世懐、何實、謝天振：《中港應用文傳意大全》，香港, 優務印書館, 2002年。
11. 駱蘭香：《傳媒中文寫作》，香港, 中華書局, 1997年。
12. 顧成子、蔣希寧：《現代銀行應用文》, 香港, 香港銀行學會, 1998年。
13. 陳少棠：《銀行應用文》, 香港, 三聯書店, 1997年。
14. 周錫驃：《中文應用寫作教程》，香港, 三聯書店, 1996年。
15. 陳德銘編：《會計實務寫作手冊》，香港, 中華書局, 2003年。
16. 劉忠惠主編：《寫作指導（上）：理論技巧》，台北, 麗文文化, 1996年。
17. 劉忠惠主編：《寫作指導（下）：文體實論》，台北, 麗文文化, 1996年。
18. 陳耀南：《書面中文的本質與應用》，香港, 香港大學出版社, 1991年。
19. 劉世劍主編：《文章寫作學：基礎理論知識部份》，台北, 麗文文化, 1995年。
20. 梁文燕：《語言的技巧作文精品示例》，成都, 四川人民出版社, 2000年。
21. 余致俊：《剪裁結構的技巧作文精品示例》，成都, 四川人民出版社, 2000年。
22. 朱光潛等：《名家談寫作》，香港, 牧村圖書有限公司, 2001年本。
23. 夏丏尊、葉聖陶：《文章講話》，上海, 上海文藝出版社, 2000年本。
24. 胡裕樹主編：《大學寫作》，上海, 復旦大學出版社, 1985年。
25. 史文周主編：《寫作概論》，西安, 陝西師範大學出版社, 1991年。
26. 孫元魁、孟慶忠編著：《論文研究與鑒賞》，濟南, 山東教育出版社, 1992年。
27. 馬振國：《論論說明的技巧作文精品示例》，成都, 四川人民出版社, 2000年。
28. 陳鍾梁、張振華：《說明文寫作指導》，上海, 上海教育出版社, 1993年。
29. 法定語文事務署：《政府公文寫作手冊》，1997年。
Learning Aims

To integrate material from subjects contributing to clinical performance and thus make the transition from theory to clinical practice.

To develop effective communication, decision-making skills used in clinical examination, analysis, and patient management via case presentation and viva.

To have exposure to rare clinical entities.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus

Case Conference 1 comprises seminars on case presentation (both verbal and written) and on communication with fellow professionals.

Indicative Content

This subject is complementary to Optometry Clinic 2 and 3 and is seminar based.

Assessment

Continuous Assessment (in semester 8) 100%
Presentations 25 %
Case reports 50 %
Viva 25 %

Reading list

There is no set reading list. Journals, especially those with regular cases studies, will be used.
Subject Title : Optometry Clinic 2  
Code : OR439
Credits : 8  
Level : 4
Status : Compulsory  
Stage : 4
Offering Department: OR  
Semester : 7

Pre-requisites:

1. All stages I to III subjects prefixed “OR” must be completed,

2. if Optometry Clinic 1 (OR419) was completed six months ago or longer, an additional clinical refresher workup* will be prescribed to maintain his/her knowledge in current clinical care.

* The “clinical refresher workup” comprises a series of sit-in observations and assessment of clinical techniques in the Optometry Clinic. The student must complete this clinical refresher workup to enable him/her to register for this subject.

Teaching Pattern

<table>
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<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
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<tr>
<td>Lecture</td>
<td>5</td>
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<tr>
<td>Clinic</td>
<td>150</td>
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<tr>
<td>Field Study</td>
<td>55</td>
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<td>_________________</td>
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<td>Total</td>
<td>210</td>
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Learning Aims

The student will practise optometric examination and management in a clinical environment under close supervision of clinical educators with a wide range of expertise. Students will learn to practise optometry as an evidence-based clinical science. The rotations will facilitate the students to develop competence to meet the professional challenge.

Outline Syllabus

Primary care optometric examination and counselling  
Case analysis  
Prescribing vision care and treatment  
Hospital visits
Indicative Content

The student must acquire the ability and confidence to conduct and prescribe all aspects of general optometric investigation and management. This is achieved by attending clinical rotations at the Optometry Clinic. Clinical work is complemented by seminar discussions in the subject Case Conference. A logbook is given to the student that details the minimum number of clinical procedures conducted as a requirement to pass the subject.

Clinical sessions may be scheduled in the summer semester whenever deemed appropriate. Five lecture hours are scheduled to allow the Clinic Chief to meet regularly with the students to exchange information and to review the work being undertaken. Students will visit the hospitals where they will have the opportunity to observe abnormal eye conditions not commonly encountered in the optometric practice.

Assessment

| Continuous assessment | 100% |

Reading List

Prescribed reading


Recommended Reading


Subject Title : Contact Lens Clinic 1
Code : OR440
Credits : 2
Level : 4
Status : Compulsory
Stage : 4
Offering Department: OR
Semester : 7

Pre-requisites:

1. All stages I to III subjects prefixed “OR” must be completed,

2. if Contact Lens Practice (OR437) was completed six months ago or longer, an additional clinical refresher workup* will be prescribed to maintain his/her knowledge in current clinical care.

* The “clinical refresher workup” comprises a series of sit-in observations and assessment of clinical techniques in the Optometry Clinic. The student must complete this clinical refresher workup to enable him/her to register for this subject.

Teaching Pattern
Clinic 42 hours

Learning Aim
To ensure that the student have the opportunity to become competent in different aspects of contact lens practice (with more emphasis on basic clinical skills and knowledge).

Outline Syllabus
Patient examination
Case analysis
Prescribing, care and treatment

Indicative Content
The student must acquire good clinical and management skills, and be effective at clinical reasoning or problem solving in contact lens practice.

Assessment
Continuous assessment 100% (Clinic assessment)
Reading List

Prescribed reading


Teaching Pattern

Project 42 hours

Learning Aims

The student will work through a research project, from problem identification to the production of a research report.

Outline Syllabus

There is no formal syllabus for this subject. A detailed description of the operation of Project is provided to students and project supervisors.

Assessment

Continous assessment 100% - Literature Review 20%; Project Report/Poster 80%
Assessment for this subject is shown only when the student has completed Project 3.

Reading List

Journals related to the chosen topic

Prescribed Reading


Recommended Reading


Subject Title : Optometry Clinic 3
Code : OR428
Credits : 6
Level : 4
Status : Compulsory
Stage : 4
Offering Department: OR
Semester : 8

Pre-requisites:

1. Optometry Clinic 2 (OR439),

2. if “Optometry Clinic 2” was completed six months ago or longer, an additional clinical refresher workup* will be prescribed to maintain his/her knowledge in current clinical care.

* The “clinical refresher workup” comprises a series of sit-in observations and assessment of clinical techniques in the Optometry Clinic. The student must complete this clinical refresher workup to enable him/her to register for this subject.

Teaching Pattern

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<table>
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<tbody>
<tr>
<td>Lecture</td>
<td>4 hours</td>
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<tr>
<td>Clinic</td>
<td>150 hours</td>
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154 hours

Learning Aims

The student will further practise optometric examination and management in a clinical environment under close supervision of clinical educators with a wide range of expertise. Students will learn to practise optometry as an evidence-based clinical science. The rotations will facilitate the students to develop competence to meet the professional challenge. Upon completion of this subject, the student will become a self-motivated, independent and skilful person to practise the optometry profession.

Specific techniques will be practised on patients with special needs.

Outline Syllabus

Primary care optometric examination and counselling
Case analysis
Prescribing vision care and treatment

Indicative Content
The student must acquire the ability and confidence to conduct and prescribe all aspects of
general optometric investigation and management. This is achieved by attending clinical
rotations at the Optometry Clinic. Clinical work is complemented by seminar discussions
in the subject Case Conference. A logbook is given to the student that details the
minimum number of clinical procedures conducted as a requirement to pass the subject.

Clinical sessions may be scheduled in the **summer semester** where deemed appropriate.
Five lecture hours are scheduled to allow the Clinic Chief to meet regularly with the
students to exchange information and to review the work being undertaken. Students have
external rotations where they will have the opportunity to observe abnormal eye
conditions not commonly encountered in the optometric practice.

**Assessment**

| Continuous assessment | 100% |

**Reading List**

**Prescribed Reading**

Benjamin WJ, Borish IM. Borish's clinical refraction. Philadelphia, Pa.: W.B. Saunders,
1998.

Grosvenor TP. : Anomalies of refraction and binocular vision. Butterworth-Heinemann,
1996.

Eskridge JB, Amos JF, Bartlett JD. (ed) Clinical procedures in Optometry. JB Lippincott

**Recommended Reading**


Scheiman M, Wick B. Clinical management of binocular vision. J.B. Lippincott Co.
Subject Title : Case Conference 2
Credits : 2
Status : Compulsory
Offering Department: OR

Teaching Pattern
- Seminars (student-led) 18 hours

Learning Aims
- To integrate material from subjects contributing to clinical performance and thus make the transition from theory to clinical practice.
- To develop effective communication, decision-making skills used in clinical examination, analysis, and patient management via case presentation and viva.
- To have exposure to rare clinical entities.

The learning outcomes are listed in the teaching schedule.

Outline Syllabus
Students will present cases both verbally (in small groups) and in writing (individually).

Indicative Content
This subject is complementary to Optometry Clinic 2 and 3 and is seminar based.

Assessment
Continuous Assessment 100%
- Presentations 25 %
- Case reports 50 %
- Viva 25 %

Reading list
There is no set reading list. Journals, especially those with regular cases studies, will be used.
Pre-requisites:

1. **Contact Lens Clinic 1 (OR440),**

2. if “**Contact Lens Clinic 1**” was completed six months ago or longer, an additional **clinical refresher workup** will be prescribed to maintain his/her knowledge in current clinical care.

   * The **clinical refresher workup** comprises a series of sit-in observations and assessment of clinical techniques in the Optometry Clinic. The student must complete this clinical refresher workup to enable him/her to register for this subject.

**Teaching Pattern**

- Clinic: 42 hours

**Learning Aims**

To ensure clinical competency in different aspects of contact lens practice, with more emphasis focused on clinical care and management.

**Outline Syllabus**

- Patient examination
- Case analysis
- Prescribing, care and treatment

**Indicative Content**

The student must acquire good clinical and management skills, and be effective at clinical reasoning or problem solving in contact lens practice.

More emphasis will be placed on management rather than skills.

**Assessment**

- Continuous Assessment: 100% (Clinic assessment)
Reading List

Prescribed Reading


Subject Title : Project 3
Credit : 6
Status : Compulsory
Offering Department: OR

Students are required to have attended: Project 2 (OR446)

Teaching Pattern

Project 84 hours

Learning Aims

The student will work through a research project, from problem identification to the production of a research report.

Outline Syllabus

There is no formal syllabus for this subject. A detailed description of the operation of Project is provided to students and project supervisors.

Assessment

Continous assessment 100% - Literature Review 20%; Project Report/Poster 80%

Reading list

Journals related to the chosen topic

Prescribed Reading


Recommended Reading

