

Waterloo Comparison with		
University of Waterloo Doctor of Optometry Program (4 years) - grouped according to Discipline		
Course Description	Course code	Total Hours
Ocular Health / TPA		
Pathophysiology LEC Pathogenesis of human disease based on a molecular and cellular framework. Fundamental concepts such as homeostasis, cell injury, protective responses (inflammation, fever, immune response) and the healing process. Systemic Pathophysiology: abnormal functions of the cardiovascular system, endocrine system, nervous system, urinary system, muscular system, respiratory system and digestive system.	OPTOM103	36.0
Anatomy of the Eye I LAB,LEC The gross, microscopic and ultra structure of ocular tissues. The embryology of the eye is included. The relationship of the eye to the vascular supply of the head and the vascular supply of the head and the nervous system will be studied. This course is credited only upon completion of OPTOM 114.	OPTOM104	84.0
Medical Microbiology LEC Bacterial physiology and genetics, normal flora, bacteria, Chlamydia, rickettsia, fungi, viruses, parasites and related diseases	OPTOM105	36.0
Histology of Tissues and Organs LEC The organization of human cells, tissues and organs. Cellular structure and function is presented as a foundation for understanding fundamental pathological constructs (e.g. carcinoma versus sarcoma). Detailed histology of major organ systems that are likely to have ocular manifestations when diseased. This coursework will provide the basis for subsequent courses in the pathobiology of ocular and systemic human disease.	OPTOM108	24.0
Anatomy of the Eye II LAB,LEC A continuation of OPTOM 104	OPTOM114	48.0
Human Gross Anatomy LAB,LEC A selective study of human gross anatomy as a basis for understanding disease. Strong emphasis is placed on head and neck anatomy, including the orbit, but thorough coverage of thorax, abdomen and pelvis is provided as well. Didactic material is illustrated in laboratory experience with dissected human cadavers, plasticized cadaveric material, anatomical models and computer-based learning tools.	OPTOM124	72.0
Immunology LAB,LEC An introduction to the vertebrate immune response; the cells and tissues of the lymphoid system; humeral and cell-mediated immunity; initiation and regulation of the immune response; the immune system and disease, techniques used in immunology. Unique features of the immunobiology of the eye are included.	OPTOM134	72.0

<p>Physiology of the Eye LAB,LEC,TUT The physiology of the smooth muscles of the eye, the extraocular striate muscles, the lacrimal apparatus, the cornea, the iris, the lens, the ciliary body and the vitreous body. Production and drainage of aqueous and related influences on intraocular pressure. The vascular supply of the eye.</p>	<p style="text-align: center;">OPTOM143</p>	<p style="text-align: center;">48.0</p>
<p>Systemic Disease LEC Etiology, signs, symptoms, diagnosis and management of diseases affecting the organs and tissues of the human body including: circulatory, hematopoietic/lymphoid, lungs/upper respiratory tract, kidney, gastrointestinal tract, liver/biliary tract, pancreas, urogenital system, endocrine system, musculoskeletal system, skin, nervous system diseases.</p>	<p style="text-align: center;">OPTOM215</p>	<p style="text-align: center;">48.0</p>
<p>Introductory Clinical Pharmacology LEC Pharmacokinetic and pharmacodynamic theory. Systemic medications used to manage most major diseases. Mechanism of action, contraindications and systemic and ocular adverse drug reactions.</p>	<p style="text-align: center;">OPTOM231</p>	<p style="text-align: center;">36.0</p>
<p>Diseases of the Eye 1 LEC Anterior segment disease including etiology, pathogenesis, signs, symptoms, differential diagnosis and management of diseases of the ocular adnexa and anterior segment of the eye: the lids, orbit and adnexa, conjunctiva, cornea, uvea, sclera, lens and cataract, the glaucoma and ocular emergencies.</p>	<p style="text-align: center;">OPTOM245</p>	<p style="text-align: center;">36.0</p>
<p>Diseases of the Eye I Laboratory LAB, TUT</p>	<p style="text-align: center;">OPTOM245 L</p>	<p style="text-align: center;">36.0</p>
<p>Diseases of the Eye II LEC Etiology, signs, symptoms, diagnosis, management, and epidemiology of diseases of the posterior segment of the eye; higher visual and oculomotor systems; multisystem diseases.</p>	<p style="text-align: center;">OPTOM255</p>	<p style="text-align: center;">36.0</p>

Diseases of the Eye II Laboratory Selected clinical techniques for students taking OPTOM 255.	LAB,TUT	OPTOM255 L	36.0
Clinical Ocular Pharmacology Pharmacokinetic and pharmacodynamic principles of ophthalmic drug design and delivery. Selection and use of ophthalmic diagnostic pharmaceutical agents, palliative agents and therapeutic pharmaceutical agents. Mechanism of action, contraindications and adverse drug reactions. Recommended guidelines for use and follow-up procedures.	LEC	OPTOM261	36.0
Diseases of the Eye III Advanced considerations of the etiology, signs, symptoms, diagnosis, treatment and management of ocular disease. Emphasis will be placed on the clinical case management with therapeutic pharmaceutical agents.	LEC	OPTOM375	24.0
Diseases of the Eye III Laboratory Selected clinical techniques for students taking OPTOM 375.	LAB	OPTOM375 L	24.0
Ocular Disease and Therapeutics Externship**** Ocular therapeutics and disease management, externship supervised patient care and clinical instruction.	CLN	OPTOM468	560.0
			(not including 588 hours from OPTOM160)
Totals per category			732
Refraction / Binocular Vision / Physiological Optics			
Neurophysiology of Vision The neural processing of colour, brightness, movement and form by the retina, lateral geniculate, cortex, superior colliculus and other brain centers. Neural mechanisms underlying binocular depth perception, the accommodative response and eye movement.	LEC	OPTOM243	24.0

Geometrical, Physical, and Visual Optics Nature of light, wave motion and superposition, rectilinear propagation, reflection and refraction, image formation and quality, optical properties of plane and curved surfaces, prisms and thin lenses. Apertures and pupils. Thick lens theory, lens systems, ray construction, Fraunhofer diffraction and resolution limit. Fresnel diffraction. Simple optical eye models. Refractive error and its correction. Interference and coherence of light: applications. Lasers	LAB,LEC,TUT	OPTOM106	96.0
Visual Perception 1: Perception of Light Sensory processes involved in visual perception. Topics include spectral sensitivity, light and dark adaptation, temporal and spatial resolution, and principles of photometry.	LAB,LEC	OPTOM109	72.0
Fundamentals of Visual Optics Refraction and reflection of light by the surfaces of the eye. Optical properties of emmetropic and ametropic eyes as a function of growth and pupil size and their measurement. Properties of the retinal image including size, blur and quality and their relationship to imperfections of the optics. Light scattered in the eye. Relationships between the retinal image and visual perception. The retinal image and accommodation.	LAB,LEC	OPTOM126	48.0
Visual Perception 2: Monocular and Binocular Visual Processes Physical space and visual space. Fundamental perceptual processes, binocular vision, stereopsis, binocular space perception. Systems of analyzing binocular vision. Theory of aniseikonia. Perceptual aspects of aniseikonia.	LAB,LEC	OPTOM219	72.0
Visual Perception III: Colour Vision	LAB,LEC	OPTOM339	48.0
Clinical Techniques II Clinical techniques for the detection of strabismus and the assessment of the non strabismus state. Assessment of ocular misalignments, motor reserves, and accommodative function with particular emphasis on the relationship between accommodation and convergence. Differential diagnosis of conditions including vertical imbalance, vergence imbalance and amblyopia	LEC	OPTOM252	36.0
Clinical Techniques II Laboratory Selected clinical techniques for students taking OPTOM 252	LAB,TUT	OPTOM252L	72.0
Clinical Techniques III	LAB,LEC	OPTOM262	24.0
Strabismus and Aniseikonia Detection and evaluation of sensory and motor characteristics of vision in aniseikonic, strabismus and nonstrabismic patients. Classifications, diagnoses, prognoses, and modes of therapy for aniseikonic, nonstrabismic, and strabismic patients.	CLN,LEC	OPTOM272	72.0
Totals per category			564

Dispensing / Contact Lenses / Ophthalmic Optics				
Ophthalmic Optics I Single vision spectacle lenses. Lens and frame materials. Optical and ophthalmic instrumentation. Image quality. Polarization. Tinted lenses. Decentration and prismatic effect. Obliquely crossed cylinders. Spectacle magnification. Ophthalmic laboratory procedures: measurement of spectacle lens power.	LAB,LEC	OPTOM216	72.0	
Ophthalmic Optics II Multifocal lenses. Theory of spectacle lens design. Protective lenses. Spectacle frame materials. Prescribing ophthalmic appliances. Ophthalmic laboratory procedures.	LAB,LEC	OPTOM246	60.0	
Ophthalmic Optics III A Spectacle frame materials. Fitting and adjusting techniques. Selection of lens design. Lenses for high myopia. Dispensing of eye protectors. Optics of low vision aids. Patient counseling and management of dispensing problems. Laboratories provide experience in practical aspects of ophthalmic dispensing.	LAB	OPTOM346	36.0	
Ophthalmic Optics III B Continuation of 346A. Practical aspects of ophthalmic dispensing. Spectacle lens and frame selection, frame fitting and adjusting techniques, repairs.	LAB	OPTOM346B	10.0	
Contact Lenses I Indications and contra-indications for contact lens wear. Lens selection and design. Fitting and evaluating rigid and hydrogel soft contact lenses. Physio-chemical and mechanical properties of contact lens materials. Optical and mathematical concepts. The ocular physiological response to contact lens wear. Care and maintenance of contact lenses.	LEC	OPTOM347	36.0	
Contact Lenses I Laboratory Selected clinical techniques for students taking OPTOM 347.	LAB	OPTOM347L	48.0	
Contact Lenses II Detection and management of chronic and acute complications induced by contact lenses. Contact lens management options for special conditions such as dry eye, aphasia and keratinous (and other corneal irregularities). Disposable lenses and replacement regimens. Extended wear options. Alternative management of refractive errors such as orthokeratology and refractive surgery. Contact lenses and presbyopia	LAB,LEC	OPTOM367	72.0	

Totals per category		333.996
Clinical Skills & Judgment		
Public Health Optometry LEC Introduction to the foundation and basic sciences of public health with an emphasis on the epidemiology of vision problems.	OPTOM270	24.0
Pediatric Optometry and Learning Disabilities LAB,LEC Optometric examination and management of infants, children and patients with learning disabilities or multiple-challenges. General child development and the development of the optical and sensory-motor functions of the visual system. Learning disabilities and related vision problems. The role of the optometrist in conjunction with parents, teachers and psychologists.	OPTOM377	48.0
Gerontology and Low Vision LAB,LEC Aging and its effects on the visual system in both health and disease, care and management of the aging patient. Assessment and management of visual impairment and disability, including both optical and non-optical therapies. Epidemiology and psychology of vision impairment, and associated rehabilitative services.	OPTOM387	60.0
Clinical Techniques I LEC Clinical techniques for the primary care examination of the optical properties and ocular health of the eye. Case history taking. Medical emergency responses. Professional boundaries.	OPTOM152	24.0
Clinical Techniques I Laboratory LAB,TUT Selected clinical techniques for students taking 152.	OPTOM152L	48.0
Case Analysis and Optometric Therapies I LEC,TUT The clinical application of the visual sciences. Emphasis is placed on the differential diagnostic method of analyzing clinical data with consideration given to appropriate clinical techniques, effective record keeping, recommended optometric therapies and prognoses.	OPTOM342A	60.0

Case Analysis and Optometric Therapies II A continuation of Optometry 342A.	LEC,TUT	OPTOM342B	48.0
Ophthalmic Lasers and Refractive Surgery General principles, types and uses of lasers in eye care. Diagnostic, thermal, ionizing, and excimer lasers. Refractive surgery. Safety and efficacy. Pre-operative and post-operative care.	LEC	OPTOM365	24.0
Clinical Medicine for Optometric Practice Overview of current medical diagnoses and management of systemic diseases with ocular involvement. History and physical examination (including neurological examination), clinical laboratory testing, and diagnostic imaging. Diseases of high prevalence including cardiovascular, cancer, endocrine, and neurological disorders.	LAB,LEC	OPTOM385	24.0
Case Analysis III Building on analytical principles developed in OPTOM 342, this course involves student, case-based presentations in a grand rounds format. Each student chooses one, different, interesting case from his/her previous clinical experience. The student presents the case and answers questions related to the case and the patient's condition(s). Faculty discussants will direct the students in assessing the basic and clinical science features of the cases. Patient cases may be chosen from any aspect of optometric practice.	LEC	OPTOM412	42.0
Clinical Techniques IV This course will provide an opportunity for optometry students to discuss and evaluate clinical techniques, instrumentation, and ideologies not covered in the current curriculum. Students will be encouraged to use their basic knowledge of the vision sciences to provide a perceptive critique of the clinical subjects addressed.	LAB,LEC	OPTOM477	42.0
Optometry Clinics**** Students are assigned to various areas within the clinic where, under direct clinical faculty supervision, they participate in the provision of optometric services to clinic patients. In addition to primary care, they are exposed to the provision of contact lens, ocular health and optical services.	CLN	OPTOM348A	192.0
Optometry Clinics**** Students are assigned to various areas within the clinic where, under direct clinical faculty supervision, they participate in the provision of optometric services to clinic patients. In addition to primary care, they are exposed to the provision of contact lens, ocular health and optical services.	CLN	OPTOM348B	192.0

<p>Primary Care Externship**** CLN Supervised optometric patient care in various external clinical settings. Activities include practice management; optometric assessment, diagnosis, treatment, and dispensing; and management and prevention of disorders and diseases of the eye and associated systemic conditions.</p>	OPTOM458	560.0
<p>Optometry Clinics**** CLN</p>	OPTOM478	126.0
<p>Professional Ethics and Optometric Communication LEC A survey of alternative philosophical perspectives involved in resolution of sample ethical and moral issues confronting optometrists. Awareness of the explicit and implicit contents of written and vocal communications. An exploration of optometric communication issues related to letter and report writing, patient counseling, patient referral, fee presentation, and complaint management.</p>	OPTOM360	24.0
<p>Optometric Jurisprudence LEC Legal aspects of practicing optometry in Canada. Fundamentals of Canadian law. Negligence. Informed consent. Legislation and regulations affecting optometric practice.</p>	OPTOM250	24.0
<p>Practice Management LEC Practice management issues relating to solo, associate-ships, contracts, the development and running of a clinical practice, opening a practice, staff training, dealing with complaints, data collection, practice promotion and marketing, advertising, financial and legal issues.</p>	OPTOM380	24.0
Totals per category		1586