OPTO90027 Integrated Ophthalmic Sciences

Credit Points:	75
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Year Long, Parkville - Taught on campus.
Time Commitment:	Contact Hours: First Semester: Six 1-hour lectures per week, four 1-hour seminar workshops per week; 6 hours of practical work per week. Second Semester: Three 1-hour lectures per week; four 1-hour seminar workshops per week. Plus attendance at the Doctor of Optometry Student Conference Total Time Commitment: 720 hours
Prerequisites:	None
Corequisites:	

Subject	Study Period Commencement:	Credit Points:
OPTO90024 Preclinical Optometry	Year Long	25

Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements for this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
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Subject Overview:	Note: This subject is only available to students enrolled in the Doctor of Optometry. This subject recognises that a scientific understanding of vision derives from an inherently multidisciplinary foundation, knitting together threads from many core fields including optics, mathematics, biochemistry, anatomy, histology, physiology, medicine and psychology. It broadly conceptualises this diverse collection of subject content into three tightly interwoven streams: the first of these is optics relating to vision, the second is biological systems underpinning vision, and the third is visual function itself, which emerges only by appreciating and exploring the various degrees of overlap among the other streams. By following both the classical and modern research literature, students will explore in depth the interactions between light and biological tissues, and consider how optical theory can be plied to provide visual optical instrumentation allowing exploration of the parameters and fitness of the eye. They will appreciate how the anatomy, biochemistry and physiology of the visual organ and its neural radiations place constraints on the rich information presented to higher brain centres, and how optical imperfections can be quantified and rectified to improve sight. By examining the detailed anatomy of the orbit and it contents, including the extra-ocular muscles and their actions, students will understand how binocular visual functions depend both on the hardware of orbital mechanics as well as the interpretative and control systems of distinct brain areas. The subject reinforces experimental approaches used to measure sensory modalities to gain

	an understanding of how each anatomical and physiological feature of the eye-brain system is critical for functions serving normal visual perception. While the scope of this subject is a complete understanding of the normal human visual system, the subject draws heavily on comparative anatomy and physiology, describing how human eyes are at the same time both similar and dissimilar to those of other species with regard to general structure and resulting functional attributes such as the perception of colour, motion perception, and our spatial vision sense. Congenital and acquired visual anomalies will also be used throughout the course to highlight the astonishing confluence of coordinated growth and maintained activity required of normal visual function while also illustrating visual dysfunction as a precursor to more detailed study in later (clinical) subjects.
Learning Outcomes:	On completion of this subject students should: # have an understanding of the normal human visual system and its physical, chemical and biological foundations that enables them to apply their knowledge to practical situations in an effective and innovative way; # be able to quantitatively describe light and its passage through optical systems (including ophthalmic instruments, ophthalmic lenses and the eye), and quantitatively assess the nature and quality of optical images; # have started to develop skills in problem identification, and have started to apply these skills to scientific problems in the visual and clinical sciences; # have started to develop an understanding of the mechanisms associated with ocular and visual system disease.
Assessment:	Two 2-hour written examinations (semester 1 examination period): 40% Two 2-hour written examinations (semester 2 examination period): 40% Six 10-minute group oral presentations (throughout the year): 10% Practical reports (throughout the year): 10% Hurdle requirements: Satisfactory performance in competency assessments, typically stream-specific written examinations (throughout year).
Prescribed Texts:	A reading list will be provided.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject students should: # have a capacity to manage competing demands on time, including self-directed project work; # have an appreciation of the design, conduct and reporting of original research; # be able to work as part of a team to address a common goal; # be able to integrate knowledge from different domains and articulate knowledge and understanding in written and oral forms; # be able to apply critical thinking and problem solving skills to new problems.
Related Course(s):	Doctor of Optometry