



Module Details	
Module Title	Refraction and Refractive Error
Module Code	OPT4002-B
Academic Year	2022/3
Credit Rating	20
School	School of Optometry and Vision Science
Subject Area	Optometry
FHEQ Level	FHEQ Level 4
Pre-requisites	
Co-requisites	

Contact Hours	
Type	Hours
Online Lecture (Asynchronous)	48
Practical Classes or Workshops	48
Directed Study	68
Online Tutorials (Synchronous)	12
Seminars	12

Availability

Occurrence	Location / Period
BDA	University of Bradford / Academic Year

Module Aims

To provide students with a fundamental understanding of the principles underlying refraction and associated visual assessment. To develop an understanding of the effect of ametropia on unaided vision and to understand how this interacts with patient age and accommodation. To develop the basic clinical skills needed for objective and subjective refraction and visual acuity assessment.

Outline Syllabus

Lecture material: Spherical ametropia and the far point. Retinoscopy on model eyes with spherical and sphero-cylindrical ametropia. Astigmatism. Retinoscopy in real patienta. Distance visual acuity measurement. Measuring visual acuity at near and assessing near vision adequacy. Measuring interpupillary distance. Monocular subjective refraction: determining best vision sphere and best mean sphere. Jackson crossed-cylinder. Fan and Block. Accommodation and age. Influence of accommodation and age on unauded vision at distance and near. Auto-refractors. Development, prevalence and changes in prevalence of refractive errors. Refractive Surgeries.

Online/ Laboratory clinical sessions: Visual acuity measurement at distance and near. Near vision adequacy at near. Model eye retinoscopy. Interpupillary distance measurement. Subjective refraction using Jackson cross-cylinder. Accommodation. Effect of uncorrected ametropia on visual acuity at distance and near (range of clear vision). Predicting types and amounts of ametropia commensurate with different levels of unaided visual acuity at distance and near.

The clinical portfolio is a completed portfolio of evidence of online/laboratory clinical experience and skills, and will include practical examinations in retinoscopy and subjective refraction, a logbook of clinical work including model-eye work. Although the logbook does not contribute to the final mark for this module, this element must be passed to achieve a pass in the module.

Learning Outcomes

Apply the relevant basic visual optics to understand emmetropia

01	and ametropia, and the principles underlying retinoscopy, subjective refraction and visual acuity determination.
02	Carry out retinoscopy with a level of competence commensurate with the end of Stage 1 of the BSc (Hons.) Optometry Programme.
03	Carry out subjective refraction and measure visual acuity with a level of competence commensurate with the end of Stage 1 of the BSc (Hons.) Optometry Programme.
04	Understand the impact of uncorrected ametropia on vision at distance and near, and the associated influences of age/accommodation.
05	Predict the types and amounts of ametropia commensurate with different levels of unaided visual acuity at distance and near.
06	Follow a plan of action to meet set targets.

Learning, Teaching and Assessment Strategy

The module will run as a lecture series (delivered face-to-face or online) and supported by online tutorials. Learning is supported by online/laboratory clinical sessions. Communication skills are developed using online practical and tutorial sessions.

Mode of Assessment

Type	Method	Description	Weighting	
Summative	Examination - Closed Book	Computer-based exam in the January exam period (1 Hr)	1 hour	10%
Summative	Examination - Closed Book	Computer-based exam at the end of the module (2 Hrs)	2 hour	90%
Referral	Examination - Closed Book	Computer-based exam (2 Hrs)	2 hour	100%

Reading List

To access the reading list for this module, please visit
<https://bradford.rl.talis.com/index.html>

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.