

| Module Details |                                        |
|----------------|----------------------------------------|
| Module Title   | Refraction and Refractive Error        |
| Module Code    | OPT4002-B                              |
| Academic Year  | 2020/1                                 |
| Credits        | 20                                     |
| School         | School of Optometry and Vision Science |
| Subject Area   | Optometry                              |
| FHEQ Level     | FHEQ Level 4                           |
| Pre-requisites | N/A                                    |
| Co-requisites  | N/A                                    |

| Contact Hours                  |       |
|--------------------------------|-------|
| Type                           | Hours |
| Online Lecture (Synchronous)   | 48    |
| Practical Classes or Workshops | 48    |
| Directed Study                 | 104   |

| 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 spherocylindrical ametropia. Astigmatism. Retinoscopy in real patients. 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 unaided 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

| Outcome Number | Description                                                                                                                                                                      |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01             | Apply the relevant basic visual optics to understand emmetropia 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                                                                | Length | Weighting |
| Summative          | Examination - Open Book   | Online assessment in the January exam period                               | 1 hour | N/A       |
| Summative          | Examination - Closed Book | Examination at the end of the module                                       | 2 hour | 100%      |
| Summative          | Coursework                | Clinical Portfolio of evidence of clinical experience & skills - PASS/FAIL | N/A    | N/A       |

| Reading List                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| To access the reading list for this module, please visit <a href="https://bradford.rl.talis.com/index.html">https://bradford.rl.talis.com/index.html</a> |

*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.*

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