Course syllabus for

Basic Optometry 1 and Research Methodology, 10.5 credits

Refraktionsmetodik 1 och vetenskapsmetodik, 10.5 hp
This course syllabus is valid from autumn 2019.

Course code	1OP066
Course name	Basic Optometry 1 and Research Methodology
Credits	10.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Optometry
Level	G1 - First cycle 1
Grading scale	Fail (U), pass (G) or pass with distinction (VG)
Department	Department of Clinical Neuroscience
Decided by	Utbildningsnämnden CNS
Decision date	2019-04-10
Revised by	Education committee CNS
Last revision	2021-04-14
Course syllabus valid from	Autumn 2019

Specific entry requirements

Natural sciences 2 (can be certified by Biology 1, Physics 1a / Physics 1b1 + 1b2, Chemistry 1), Mathematics 2a / 2b / 2c. Or: Natural Sciences B (can be certified by Biology A, Physics A, Chemistry A), Mathematics B.

Objectives

After the course, the student should be able to

- (1) list and describe various types of visual defects (refractive errors/ammetropia/emmetropia), and explain/describe how the eye can change refraction (accommodation); and describe/explain how lenses influences the retinal image
- (2) carry out visual acuity testing and relate the results to different refractive errors and visual acuity conversion.
- (3) apply binocular refraction including binocular vision tests and cross cylinder (in test frame) based on objective start value and hygiene procedures in the vision clinic.
- (4) apply instruments for corneal curvature measuring (keratometer).
- (5) apply communicative tools to find out, document and evaluate relevant information (medical

history taking) as a basis for the implementation of the vision screening
- (6) list various types of glass materials and list and handle frame materials, and describe their characteristics,
- (7) apply instruments for measure the lens (focimeter) to verify single power lenses, and be able to calculate decentration in relation to PD (pupil distance) and height theoretically.
- (8) show included understanding of aspects around confidentiality in a healthcare context and knowledge of relevant ordinances in relation to record keeping and ethical aspects within the care.

The student should also, in an appropriate level, based on optometry, care and scientific perspective, be able to

- (9) ability to distinguish knowledge at the scientific level
- (10) demonstrate an understanding of scientific publications and about the disciplinary foundation of the field.
- (11) ability to identify and account for relevant information from scientific literature and to discuss new facts, phenomena and issues.

Aim 9-11 should be seen in relation to the document "Vetenskaplig strimma Optikerprogrammet" (Scientific streak of the optometry program).

Content

The course contains of the following parts: Emmetropia and ametropia (refractive errors) including astigmatism; accommodation; retinal image formation; visual acuity, testing and estimate of refractive errors; keratometry, PD-measurements and binocular vision tests refraction methods and objective refraction methodology (autorefractor) and subjective binocular refraction methodology (including cross cylinder) in test frame; level-suited medical history taking; medical records keeping; materials science (glass and arcs); measure the lens with focimeter and calculation of optical deviations in relation to PD and height; relevant statutes about e.g. confidentiality, medical records keeping and ethical aspects in the care; hygiene procedures in vision examination; and sustainable development in an optometric health care perspective.

In addition to this the course is part of the teaching of general scientific knowledge within the program. In connection with this, the students will be introduced to scholarship and best practice and scientific communication. They will also develop his knowledge and understanding, their skills and abilities, their judgement and their scientific thought - and attitude in relation to optometry and a lifelong learning. The teaching of general scientific knowledge is described in a separate document.

The course is divided in two parts.

Clinical Work, 5.5 hp

Grading scale: GU

Part 1 includes assignments, group assignments, workshop, clinical work and attendance at compulsory parts.

Theoretical Understanding, 5.0 hp

Grading scale: VU

Part 2 includes theoretical understanding of the course contents.

Teaching methods

The course includes self-study, demonstrations, test, laboratory sessions, theoretical overviews (in the form of e.g. lectures, seminars, flipped-classroom, case methods), practical/clinical exercises, portfolio

and written assignments. The students are given a possibility to train practical skills but must take a great responsibility themselves.

Seminars and laboratory sessions are compulsory.

The examiner assesses if, and how, absence from compulsory parts can be compensated. Study results cannot be reported until the student has participated in compulsory course elements or compensated for any absence in accordance with instructions from the examiner. Absence from a mandatory education element could mean that the student can not do the part until the next time the course is offered.

Examination

The course be examined against the following aims and on the following way:

Component 1, Clinical work, assess the aims 2-5, 7-8. The component is assessed through a practical test in refractioning, binocular vision tests, keratometer and frame adjustments. The part is graded according to the scale Fail/Pass.

Part 2, Theoretical understanding. The part is examined with written/oral test. Retake may take place orally. The part is graded according to the scale Fail/Pass/Pass with distinction.

The whole course is graded according to the scale Fail/Pass/Pass with distinction. A Pass grade requires a Pass in both parts. For a Pass with distinction, a Pass in part 1 and a Pass with distinction in part 2, are required.

Criteria for assessing practical tests are established in separate documents.

To pass the course, attendance at compulsory course elements is also required.

Limitation of number of tests or practical training sessions
Student who do not pass the regular examination are entitled to re-sit the examination at five more occasions. If the student has carried out six failed examinations no additional examination will be given. As examination, the times are counted when the student has participated in the same test. Submission of blank exam is counted as examination.
Examination to which the student registered, but not participated, be counted not as examination.

If there are special grounds, or a need for adaptation for a student with a disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory section/s of the course etc. Content and learning outcomes as well as the level of expected knowledge, skills and attitudes may not be changed, removed or reduced.

Transitional provisions

The course has been cancelled and was offered for the last time in the fall semester of 2020. Examination will be provided until the fall semester of 2022 for students who have not completed the course.

Other directives

Course evaluation takes place according to guidelines established by Karolinska Institutet.

The course may be given in parallel with the course Optics 1 (KTH) and is based on knowledge acquired at the course.

Some teaching may be in English.

Literature and other teaching aids

Mandatory literature

Benjamin, William J.; Borish, Irvin M.
Borish's clinical refraction

2nd ed. : St. Louis, Mo. : Butterworth-Heinemann/Elsevier, c2006. - xviii, 1694 p.
ISBN:0-7506-7524-1 LIBRIS-ID:10580274
Library search

Rutstein, Robert P.
Anomalies of binocular vision : diagnosis & management
Daum, Kent Michael

St. Louis ; b Mosby, c cop. 1998 : Mosby, cop. 1998 - xv, 368 s.
ISBN:0-8016-6916-2 LIBRIS-ID:5674465
Library search

Recommended literature

Clinical procedures in primary eye care
Elliott, David B.

3rd ed. : Edinburgh ;a New York : Elsevier/Butterworth Heinemann, 2007 - xii, 342 p.
ISBN:978-0-7506-8896-3 LIBRIS-ID:11008167
Library search

Evans, Bruce J. W.; Pickwell, David.t Binocular vision anomalies
Pickwell's binocular vision anomalies

5. ed. /b Bruce J.W. Evans : Edinburgh ;a New York : Elsevier Butterworth Heinemann, 2007 - 454 s.
ISBN:978-0-7506-8897-0 LIBRIS-ID:10659509
Library search

Grosvenor, Theodore P.
Primary care optometry

5th ed. : St. Louis, Mo. : Butterworth-Heinemann/Elsevier, c2007 - xiii, 510 p.
ISBN:0-7506-7575-6 LIBRIS-ID:10438993
Library search

Millodot, Michel
Dictionary of optometry and visual science

7. ed. : Oxford : Butterworth-Heinemann, 2009 - 409 p
ISBN:978-0-7020-2958-5
Library search

Rabbetts, R. B.
Clinical Visual Optics

4:e upplaga : Oxford: Butterworths - 488s. : 2007
ISBN:0-7506-8874-2
Library search

Steinman, Scott B.; Steinman, Barbara A.; Garzia, Ralph P.
Foundations of binocular vision : a clinical perspective

New York : McGraw-Hill Co., c2000. - xi, 345 p.
ISBN:978-0-8385-2670-5 (alk. paper) LIBRIS-ID:11950260

Library search