



**Karolinska
Institutet**

Programme syllabus for

Study Programme in Optometry, 180 credits

Optikerprogrammet, 180 hp

Basic programme information

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| Programme code | 1OP13 |
| Name of the programme | Study Programme in Optometry |
| Number of credits | 180.0 credits (180.0 ECTS credits) |
| Starting date | The syllabus applies to students who commence their studies in or after autumn 2013. |
| | Approved revisions of the syllabus are described under the heading Transitional Provisions. |
| Decision date | 2012-11-12 |
| Decided by | Board of Higher Education |
| Last revision | 2023-06-05 |
| Revised by | Committee for Higher Education |
| Reference number | 3-2753/2023 |
| Main field of study | Optometry |
| Qualification | Optikerexamen <i>Degree of Bachelor of Science in Optometry</i> Medicine kandidatexamen med huvudområdet optometri <i>Degree of Bachelor of Medical Science with a Major in Optometry</i> |
| | A student who fulfils the requirements for the award of a qualification shall, upon request, be provided with a certificate. |

Outcomes

Outcomes of first cycle education according to the Higher Education Act

First-cycle courses and study programmes shall be based fundamentally on the knowledge acquired by pupils in national study programmes in the upper-secondary schools or its equivalent.

First-cycle courses and study programmes shall develop:

- the ability of students to make independent and critical assessments
- the ability of students to identify, formulate and solve problems autonomously, and
- the preparedness of students to deal with changes in working life.

In addition to knowledge and skills in their field of study, students shall develop the ability to:

- gather and interpret information at a scholarly level
- stay abreast of the development of knowledge, and
- communicate their knowledge to others, including those who lack specialist knowledge in the field.

Outcomes for a Degree of Bachelor of Science in Optometry according to the Higher Education Ordinance

For a Degree of Bachelor of Science in Optometry the student shall demonstrate the knowledge and skills required for registration as an optometrist.

Knowledge and understanding

For a Degree of Bachelor of Science in Optometry the student shall

- demonstrate knowledge of the disciplinary foundation of the field and awareness of current research and development work as well as the links between research and proven experience and the significance of these links for professional practice, and
- demonstrate knowledge of the relevant statutory provisions.

Competence and skills

For a Degree of Bachelor of Science in Optometry the student shall

- demonstrate the ability to undertake eye tests autonomously and in cooperation with the patient and also when required to refer a patient to other health care services
- demonstrate the ability to participate in optometric habilitation and rehabilitation in the health care services
- demonstrate the ability to apply his or her knowledge to deal with different situations, phenomena and issues on the basis of the needs of individuals and groups
- demonstrate the ability to inform and instruct different audiences
- demonstrate the ability to present and discuss assessments and interventions with those concerned in speech and writing and also to document them in accordance with the relevant statutory provisions
- demonstrate the capacity for teamwork and cooperation with other professional categories, and
- demonstrate the ability to review, assess and use relevant information critically and to discuss new data, phenomena and issues with various audiences and so contribute to the development of the profession and professional practice.

Judgement and approach

For a Degree of Bachelor of Science in Optometry the student shall

- demonstrate self-awareness and the capacity for empathy
- demonstrate the ability to assess interventions informed by the relevant disciplinary, social and ethical aspects and taking particular account of human rights
- demonstrate the ability to adopt a professional approach to clients or patients and those close to them, and
- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Outcomes of the Degree of Bachelor according to the Higher Education Ordinance

Knowledge and understanding

For a Degree of Bachelor of Science student shall

- demonstrate knowledge and understanding in the main field of study, including knowledge of the disciplinary foundation of the field, understanding of applicable methodologies in the field, specialised study in some aspect of the field as well as awareness of current research issues.

Competence and skills

For a Degree of Bachelor of Science student shall

- demonstrate the ability to search for, gather, evaluate and critically interpret the relevant information for a formulated problem and also discuss phenomena, issues and situations critically
- demonstrate the ability to identify, formulate and solve problems autonomously and to complete tasks within predetermined time frames
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences, and
- demonstrate the skills required to work autonomously in the main field of study.

Judgment and approach

For a Degree of Bachelor of Science student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues
- demonstrate insight into the role of knowledge in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the need for further knowledge and ongoing learning.

Outcomes of the study programme at Karolinska Institutet

The optometry programme at KI shall provide excellent optometric knowledge with a focus on the deep understanding of geometrical and physical optics, physiological optics, medicine and humane personal treatment and care. It shall provide basic skills for the profession, including scientific thought, communicative capability and self-awareness. The aspiring optometrist shall also have developed an approach based on interest in and respect for fellow human beings and sustainable development, as well as the ability to take responsibility for care jointly with other professionals and have the desire to learn and to pass on knowledge. The programme shall also prepare students for higher studies, and development and research work.

After completing the programme, students shall have:

- knowledge of the relevant legislation within health care as well as ethics in health care, and
- knowledge and understanding of equality and diversity issues.

Content and structure

The optometry programme covers 180 credits, most of which are in the main field of study of

optometry. The clinical courses are conducted internally for the most part at the clinic at St. Erik's Eye Hospital but also at private optometric clinics. The clinical parts of the programme are integrated with the theoretical study. The programme is research-based in terms of content, and should support students in developing a scientific approach as regards both specific subject knowledge and generic problems.

Several courses within the main field of study of optometry are taught in parallel in order to improve integration, reduce unnecessary repetition, bridge the gap between preclinical and clinical courses - all in an effort to facilitate learning. The first year is essentially a preclinical year.

The courses are planned to ensure that the knowledge gained from previous courses form the basis of the studies in subsequent courses later in the term and in future terms. The clinical study is directed at the various activities of the optician. The same type of patient cases may reappear at the various different teaching levels with different problems of gradually increasing difficulty.

A schematic illustration of the progression within the programme's geometric and physical optics courses and clinical courses are available in the document *Progression within the Study Programme of Optometry* (ref 6523/11-465).

The *teaching in scientific knowledge and understanding* runs throughout the programme that hones your ability to search, compile and analyse facts in relation to the course-specific questions. The scientific stream also includes practical training in written and oral presentations of scientific facts. The teaching in scientific knowledge and understanding is included in most of the programme's courses with an increasing degree of specialisation, and is integrated with in-depth studies in the subject area. The aim of the teaching in scientific knowledge and understanding is to provide tools for scientific thinking and analysis, and prepare students for lifelong learning. The learning outcomes in the teaching in scientific knowledge and understanding are examined as part of each course.

The courses in the main field of study in the first year (terms 1 and 2) aim to provide basic knowledge and skills in geometrical optics, imaging quality, measurement of refractive errors in the eye, eye movements and binocular vision as well as optometry engineering.

Scientific, factual and scientific examinations of the facts are discussed in the scientific stream in the first year. Here we describe and discuss various forms of scientific communication and the difference between scientific and popular science publications.

Term 1 courses include Geometrical Optics, Physical Optics, Optometry 1, General Anatomy and General Physiology. These courses include basic knowledge of optics, refraction, optometry engineering and general anatomy and physiology.

Term 2 courses include Ocular Anatomy, Physiology and Diseases 1, Optometry 2, Optimal Image Quality, Pathology and Microbiology.

The Ocular Anatomy, Physiology and Diseases course is a continuation of the General Anatomy, General Physiology, Pathology and Microbiology courses, although with a specialisation in Ocular Anatomy, Physiology and Diseases related to the eye's anterior segments.

The Optimal Image Quality course is directly based on the knowledge you have acquired in the Geometrical and Physical Optics courses and provides in-depth knowledge on Optimal Image Quality in relation to the eye as an optical system.

The Optometry 2 course is a continuation of Optometry 1 but includes enhanced knowledge and skills in refraction and optometry engineering. In addition to refraction theory, the course covers eye movements and binocular vision and builds on the knowledge gained from the General Anatomy, General Physiology and Ocular Anatomy, Physiology and Diseases courses and is designed to provide in-depth knowledge and understanding of how the eyes move and includes binocular vision physiology.

The Pathology and Microbiology courses are basic courses that prepare students for courses in Ocular Anatomy, Physiology and Diseases and Pharmacology.

The courses in the subject area in year two (terms 3 and 4) are designed to provide students with applicable and analytical skills in the subject areas of optometric refraction, optics of the eye, binocular problems and contact lenses. In the clinical courses, students are prepared to practice independently evidence-based optometric health care.

Term 3 courses include Refraction 1, Ocular Anatomy, Physiology and Diseases 2, Pharmacology and Optics of the Human Eye.

The Refraction 1 course builds on previous courses in optometric examination methodology, but also aims to provide students with a holistic examination procedure to ultimately ensure that they can independently carry out refraction on patients with common vision problems.

The Pharmacology course builds on the courses in anatomy, physiology, microbiology, including basic knowledge of pharmacological processes in the eye and the body as a whole.

The Ocular Anatomy, Physiology and Diseases 2 course builds on Level 1 and includes in-depth knowledge of anatomy, physiology and diseases in the posterior segments of the eye.

The Optics of the Human Eye course combines physical and geometrical optics with the eye's optics to provide a deeper understanding of the eye as an optical instrument.

In the teaching in scientific knowledge and understanding in term 3, the focus is put on searching scientific publications using specified criteria. These publications are then discussed in relation to course-specific questions. In parallel with this, the student is trained in scientific writing with a focus on introduction, results and reference lists.

Term 4 courses include Perception, Refraction 2, Optical Instruments, Contact Lenses and Chemistry, Optometric Clinic 1 and Low Vision.

The courses in Refraction, Low Vision, and Optometric Clinic are based on the optometric courses from previous terms and provide knowledge at an advanced analytical and applicable level in the area of the optometric examination of both patients with common vision problems and vision loss. The Contact Lenses and Chemistry course also provides basic knowledge in contact lens technology.

The Perception course is based on the courses in General Anatomy, General Physiology and Ocular Anatomy, Physiology and Diseases 1-2 and the course in binocular vision and eye movement. The course covers basic and advanced knowledge about visual perception and cortical visual perception processes.

The Optical Instruments course builds on knowledge from the courses in geometrical and physical optics and covers the basic knowledge of ophthalmic examination instruments and in-depth knowledge of optometric examination instruments.

In the teaching in scientific knowledge and understanding in term 4, the ability of the student to further develop fact-finding and article searches is developed. It focuses specifically on the scientific writing process and on the student compiling and reasoning about how scientific studies relate to one another and that they are trained to compose a scientific discussion.

The courses in the main field of study in year three (terms 5 and 6) aim to provide students with knowledge at a level where they are able to apply, analyse and reflect on the subject areas of clinical refraction, eye diseases, binocular vision, optometric rehabilitation and habilitation, as well as contact lenses.

In terms 5 and 6 the teaching in scientific knowledge and understanding runs in parallel with the degree project and continues to advance the student's ability to be critical in analysing and reflecting on the research and its relationship to course-specific questions.

The courses in Terms 5 and 6 include Statistics and Science Methods, Degree Project, Optometric Clinic 2 and 3, Contact Lenses, Workplace optometry and elective courses.

The course in Statistics and Science Methods aims to further develop the capability of students for critical review of the research literature and understanding of issues related to research ethics. The course also covers the understanding, analysis and interpretation of quantitative and qualitative data, as well as the study and application of theories in science methodology. The course is part of the teaching in scientific knowledge and understanding of the programme.

The clinical courses provide knowledge at an applicable and reflective level in the area of optometry.

The degree project is intended to lead to a significant advancement in knowledge of the subject. The project will be implemented with adequate scientific methods for addressing the question at issue/subject and is permeated with a scientific approach.

The elective courses mean that each student can select a course/courses based on orientation and special interest. The courses may include both theoretical and practical elements. Following approval, the elective courses may be conducted at other universities in Sweden or abroad.

The assessment templates must be used for all examinations for the assessment of clinical skills.

Language of instruction

The course language is Swedish but courses may be held in English. Both English and Swedish literature is used.

Transitional provisions

This programme syllabus is cancelled.

Other guidelines

Grading scale

The grades used are *Fail*, *Pass* or *Pass with Distinction*. Alternative grading scales may apply to elective courses or cross-programme courses. The grading scale is detailed in the course syllabus.

Language of instruction

The course language is Swedish but courses may be held in English. Both English and Swedish literature is used.

Specific eligibility requirements within the programme

There are specific eligibility requirements for the courses within the programme. The eligibility requirements can be found in the syllabi. In cases where the requirements are connected to the admission to a later term, they are described on the programme website. There may also be specific eligibility requirements within a specific term if a course requires certain prior knowledge. The requirements for elective courses may also differ in comparison to mandatory courses during the rest of the term.

Study plan with constituent courses

| Semester | Name of the course | Credits | Cycle | Depth of the course |
|----------|---|---------|--------------|---------------------|
| 1 | Optometry 1 | 9 | First | G1 |
| 1 | Geometrical Optics | 7.5 | First | G1 |
| 1 | Physical Optics | 4.5 | First | G1 |
| 1 | General Anatomy | 4.5 | First | |
| 1 | General Physiology | 4.5 | First | |
| 2 | Ocular Anatomy, Physiology and Diseases 1 | 7.5 | First | G1 |
| 2 | Optometry 2 | 10.5 | First | G1 |
| 2 | Optical Image Quality | 6 | First | G1 |
| 2 | Pathology | 3 | First | |
| 2 | Microbiology | 3 | First | |
| 3 | Refraction 1 | 12 | First | G1 |
| 3 | Ocular Anatomy, Physiology and Diseases 2 | 7.5 | First | G2 |
| 3 | Pharmacology | 3 | First | |
| 3 | Optics of the Human Eye | 7.5 | First | G2 |
| 4 | Perception | 4.5 | First | G1 |
| 4 | Refraction 2 | 6 | First | G2 |
| 4 | Optical Instruments | 3 | First | G1 |
| 4 | Contact Lenses and Chemistry | 4.5 | First | G1 |
| 4 | Optometric Clinic 1 | 7.5 | First | G2 |
| 4 | Low vision | 4.5 | First | G2 |
| 5 | Statistics and Science Methods | 3 | First | |
| 5 and 6 | Degree Project in Optometry | 15 | First | G2 |
| 5 | Optometric Clinic 2 | 6 | First | G2 |
| 5 and 6 | Contact Lenses | 15 | First | G2 |
| 6 | Optometric Clinic 3 | 7.5 | First | G2 |
| 6 | Environmental Optometry | 6 | First | G2 |
| 6 | Elective courses | 7.5 | First/Second | |