



**Karolinska  
Institutet**

Course syllabus for

# **Ocular anatomy, physiology and diseases 1, 7.5 credits**

Ögats anatomi, fysiologi och sjukdomar 1, 7.5 hp

This course syllabus is valid from spring 2025.

Please note that the course syllabus is available in the following versions:

Spring2020 , Spring2022 , Autumn2022 , Spring2025

Course code	1OP068
Course name	Ocular anatomy, physiology and diseases 1
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Not applicable
Level	GX - First cycle
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Clinical Neuroscience
Decided by	Utbildningsnämnden CNS
Decision date	2019-10-23
Revised by	Education committee CNS
Last revision	2024-09-25
Course syllabus valid from	Spring 2025

## **Specific entry requirements**

Matematik 2a, 2b or 2c, Naturkunskap 2.

## **Objectives**

After the course, the student should be able to

- 1) describe and explain the osteology of the orbit, and its blood supply and innervation
- 2) describe and explain the sclera, the cornea, the conjunctiva and limbus/the border between the cornea and the conjunctiva and their structure and function
- 3) describe and explain the lens, ciliar body, iris and accommodation mechanism including anterior chamber, posterior chamber, aquas humor, and the intra ocular pressure
- 4) describe and explain for human ocular accommodation - how it be stimulated and changes with age, and describe and account for pupil reactions and how these are connected with the accommodation
- 5) describe and explain the external parts of the eye (eyelids and lacrimal system), the structure and function of the tear film and be able to perform a basic tear film analysis

- 6) describe and explain the external muscles - their process, function, movement and innervation and vascular supply of the eye
- 7) perform and interpret pressure measurements (IOP), pupillary response test and evaluate the main parts of the eye with the slit lamp
- 8) list and make differential diagnosis of injuries and diseases in the main parts of the eye and in the aging eye (rear and main parts)
- 9) describe differences in occurrence of diseases in the main segments of the eye based on an ethnic and global health perspective.

In addition to above the student should, in a level adapted optometry, care and scientific perspective be able to

- 10) ability to distinguish knowledge at the scientific level
- 11) describe different scientific types of publications and about the disciplinary foundation of the field
- 12) demonstrate ability to distinguish and combine relevant information from scientific literature and to discuss new facts, phenomena and issues
- 13) demonstrate ability to orally and in writing account for and discuss information, problems and solutions in dialogue with different groups.

Aim 10-13 should be seen in relation to the document "Vetenskaplig strimma Optikerprogrammet" (Scientific Thread in Study Programme of Optometry).

## Content

The course includes the following: anatomy, physiology, diseases in the main parts of the eye, diseases in the aging eye and study and evaluation of main segments. In addition, the course is part of the scientific streak within the program. In connection with the Scientific streak of the optometry program, students are introduced in a level and subject-adapted way to science, science and proven experience as well as scientific communication. They will also develop knowledge and understanding, skills and abilities, 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 the following three modules:

### **Clinical work, 2.0 hp**

Grading scale: GU

The module includes written assignments, group assignment, clinical work and practical test in clinical practical methodology.

### **Theoretical understanding, 4.5 hp**

Grading scale: VU

The module includes theoretical understanding and renewal of the topic-specific contents of the course.

### **Scientific development, 1.0 hp**

Grading scale: GU

The module includes assignments in KI's virtual learning environment, the scientific streak and written assignments.

## Teaching methods

The course includes self-studies, demonstrations, test, 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.

Some course elements are compulsory, see heading "Examination".

## Examination

The course is examined in the following way:

### *Module 1, Clinical work*

- a) practical test in slit lamp, is graded U or G
- b) compulsory seminars as per schedule
- c) compulsory portfolio according to instructions

The module is graded U or G. The grade G requires G on practical test as well as fulfillment of compulsory course elements.

### *Module 2, Theoretical understanding*

- a) written examination, graded U, G or VG
- Re-examination may take place orally.
- b) compulsory seminars as per schedule

The module is given the grade U, G or VG. The grade G requires G on written examination, and fulfillment of compulsory course elements. The grade VG requires VG on written examination, and fulfillment of compulsory course elements.

### *Module 3, Scientific development*

- a) compulsory assignments in KI's virtual learning environment
- b) written assignments, graded U or G
- c) compulsory seminars as per schedule, a part of the scientific streak of the programme

The module is graded U or G. The grade G requires G on all written assignments b), and fulfillment of compulsory course elements.

### *Course grade*

The entire course is graded U, G or VG. The grade G on the entire course requires G on all modules. The grade VG requires G on module 1 and 3 and VG on module 2.

### *Absence from or unfulfillment of compulsory course element*

The examiner decides whether, and if so how, absence from or unfulfillment of compulsory course elements can be made up for. Study results cannot be reported until the student has participated in or fulfilled compulsory course elements, or compensated for any absence/ failure to fulfill in accordance with instructions from the examiner. Absence from or unfulfillment of a compulsory course element may imply that the student can not retake the element until the next time the course is offered.

### *Possibility of exception from the course syllabus' regulations on 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

If the course is cancelled or goes through substantial changes, information about interim regulations will be stated here.

## Other directives

Course evaluation takes place according to guidelines established by Karolinska Institutet. Compilation of the students' answers in course questionnaires and the course coordinator's analysis of these are published on KI's public course web.

Some teaching may be in English.

## Literature and other teaching aids

### *Mandatory literatur*

#### **Clinical ophthalmology : a systematic approach**

*Kanski, Jack J.; Bowling, Brad; Nischal, Ken K.; Pearson, Andrew*

7. ed. : Edinburgh : Butterworth-Heinemann, 2011 - ix, 909 s.

ISBN:978-0-7020-4093-1 (hbk.) LIBRIS-ID:12189545

[Library search](#)

*Remington, Lee Ann.*

#### **Clinical anatomy and physiology of the visual system**

3rd ed. : St. Louis : Elsevier/Butterworth-Heinemann, c2012. - ix, 292 p.

ISBN:1437719260 LIBRIS-ID:20698295

[Library search](#)

### *Recommended literature*

*Lönwe, Bo*

#### **Ögonsjukdomar i primärvården**

*Tornqvist, Kristina; Bengtsson-Stigmar, Elisabeth*

[Ny utg.] : Malmö : Leo Pharma Nordic, cop. 2005 - 123 s.

ISBN:91-974368-4-4 LIBRIS-ID:10697668

[Library search](#)

*Bergmansson, Jan P.G*

#### **Clinical ocular anatomy and physiology**

Texas eye research and technology center, 2009 - 218 p

ISBN:13:978-0-9800-708-1-1

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*Ehlers, Justis P.; Shah, Chirag P.*

#### **The Wills eye manual : office and emergency room diagnosis and treatment of eye disease.**

5th ed. /b editors, Justis P. Ehlers, Chirag P. Shah ; associate editors, Gregory L. Fenton, Eliza N.

Hoskins, Heather : Philadelphia : Wolters Kluwer / Lippincott Williams & Wilkins, c2008. - xvii, 455 p.

ISBN:978-0-7817-6962-4 LIBRIS-ID:11823109

[Library search](#)

*Lang, Gerhard K.*

#### **Ophthalmology : a short textbook**

Stuttgart : Thieme, 2000 - 586

ISBN:3131261617

[Library search](#)

*Saude, Trygve*

#### **Ocular anatomy and physiology**

London : Blackwell Science, cop. 1993 - vii, 168 s.

ISBN:0-632-03599-4 LIBRIS-ID:9066980

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