



Course syllabus for

# **Theory and Methodology of Science in Odontology, 15 credits**

Vetenskapsteori och forskningsmetodik inom odontologi, 15 hp

This course syllabus is valid from autumn 2024.

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

Autumn2020 , Autumn2024

Course code	2QA294
Course name	Theory and Methodology of Science in Odontology
Credits	15 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Odontology, Oral Health, Dental Technology
Level	Second cycle, has only first-cycle course/s as entry requirements
Grading scale	Pass, Fail
Department	Department of Dental Medicine
Decided by	Education committee DENTMED
Decision date	2019-11-11
Revised by	Education committee DENTMED
Last revision	2023-12-19
Course syllabus valid from	Autumn 2024

## **Specific entry requirements**

A Bachelor's degree or a professional degree equivalent to a Swedish Bachelor's degree of at least 180 credits within dentistry, odontological prophylaxis/oral health or dental technology. And proficiency in Swedish and English equivalent to Swedish B/Swedish 3 and English A/English.

## **Objectives**

The major aim of the course is that the student should obtain extensive knowledge and comprehension of theory of science and research methodology as well as of their application in research within the field of dentistry, odontological prophylaxis/oral health or dental technology. The course also intends to prepare the student for participation in research and development by enhancing their critical thinking skills and awareness of research ethics.

The student should on completion of the course independently be able to:

- Explain basic concepts within theory of science and research methodology and relate these to their

own field of knowledge within dental research.

- Evaluate and choose appropriate strategies for information searches as well as perform searches in relevant scientific medical databases.
- Critically review and assess the quality of evidence of scientific literature mainly within the field of dentistry.
- Analyse, assess and apply research-ethical basic principles.
- Explain the process of data documentation and management.
- Explain and assess the similarities and differences between qualitative and quantitative research designs.
- Apply and interpret basic principles of statistical analytical methods.
- Integrate the knowledge of theory of science, research ethics and research methodology in a written research plan within a chosen field in dental research.
- Describe the current state of research within the chosen field.
- Communicate orally and in writing in English about dental research.

## Content

The course covers:

- Theory of Science
- Research methodology
- Research ethics
- Research design
- Literature search and critical review of scientific articles
- Statistical analytical methods

## Teaching methods

The course contains varying working methods consisting of lectures, workshops, seminars and student-activating group work that stimulates the cooperation between dentists, dental hygienists and dental technicians. Individual studies and project work.

Compulsory attendance applies to all lectures, seminars and workshops.

The course coordinator decides whether, and if so how, absence from compulsory course elements can be made up.

## Examination

Written assignments regarding statistics, scientific articles and ethical application. An independently written research plan within a chosen field, as well as a written peer review of another student's research plan. Oral presentation of the research plan at a half-time seminar. Oral presentation of the final research plan at a seminar.

Students who do not pass a regular examination can participate in five more examination sessions. If the student has failed six examinations/tests, no additional examination is given. In case a student is registered for an examination but does not attend, this is not regarded as an examination.

## Transitional provisions

Examination will be provided during a time of two years after a possible close-down of the course.

## Other directives

Language of instruction: Swedish and English.

Language of examination: Swedish and English.

## Literature and other teaching aids

### Recommended literature

*Ejlertsson, Göran*

#### **Statistik för hälsovetenskaperna**

2., moderniserade och utök. uppl. : Lund : Studentlitteratur, 2012 - 303 s.

ISBN:978-91-44-07048-3 LIBRIS-ID:13374003

URL: [Övningsmaterial](#)

[Library search](#)

*Forsman, Birgitta*

#### **Forskningsetik**

Studentlitteratur AB, 2010

ISBN:978-91-44-06350-8 LIBRIS-ID:11909240

URL: [Omslag och förlagets beskrivning](#)

[Library search](#)

*Helgesson, Gert*

#### **Forskningsetik för medicinare och naturvetare**

Lund : Studentlitteratur, 2006 - 262 s.

ISBN:91-44-04414-3 LIBRIS-ID:10164939

[Library search](#)

*Nilstun, Tore; Lundqvist, Anita; Löfmark, Rurik*

#### **Vetenskapsteori i medicin och klinik**

1. uppl. : Lund : Studentlitteratur, 2007 - 127, [1] s.

ISBN:978-91-44-03461-4 LIBRIS-ID:10414475

URL: [Omslagsbild](#)

[Library search](#)

*Strålfors, Peter; Olsson, Anders G.; Simonsson, Nisse*

#### **Vetenskapligt förhållningssätt : introduktion till vetenskapligt tänkande och arbetssätt speciellt inom biomedicinsk forskning**

Lund : Studentlitteratur, 1998 - 108 s.

ISBN:91-44-00951-8 ; 235:00 LIBRIS-ID:8352764

[Library search](#)

*Wallén, Göran*

#### **Vetenskapsteori och forskningsmetodik**

2. uppl. : Lund : Studentlitteratur, 1996 - 151 s.

ISBN:91-44-36652-3 LIBRIS-ID:8353602

[Library search](#)

*Okasha, Samir*

#### **Philosophy of science : a very short introduction**

2. ed. : Oxford : Oxford University Press, 2016 - 140 p.

ISBN:978-0-19-874558-7 LIBRIS-ID:18713096

[Library search](#)

*Petrie, Aviva; Sabin, Caroline*

**Medical statistics at a glance**

2. ed. : Malden, Mass. : Blackwell Publ., 2005 - 157 p.

ISBN:978-1-4051-2780-6 (alk. paper) LIBRIS-ID:9981725

[Library search](#)

*Bland, Martin*

**An introduction to medical statistics**

3. ed. : Oxford : Oxford University Press, 2000 - xvi, 405 s.

ISBN:0-19-263269-8 (hft.) LIBRIS-ID:4603394

[Library search](#)

*Rothman, K*

**Epidemiology. An introduction.**

Oxford University Press, 2002

*Brunette, Donald Maxwell*

**Critical thinking : understanding and evaluating dental research**

2nd ed. : Chicago : Quintessence Pub. Co., c2007 - x, 312 p.

ISBN:978-0-86715-426-9 (pbk.) LIBRIS-ID:10682194

[Library search](#)

*Riegelman, Richard K.*

**Studying a study and testing a test : how to read the medical evidence**

4. ed. : Philadelphia : Lippincott Williams & Wilkins, 2000 - 356 s. + e 1 DC-ROM

ISBN:0-7817-1860-0 LIBRIS-ID:8307462

[Library search](#)

**Oral healthcare and the frail elder : a clinical perspective**

*MacEntee, Michael I.; Müller, Frauke.; Wyatt, Chris; MacEntee, Michael I.*

Hoboken : John Wiley & Sons, Inc., 2010. - 1 online resource (327 p.)

ISBN:9780470958391 LIBRIS-ID:12294286

[Library search](#)

*Brondani, Mario; MacEntee., Micael I*

**Dental psychometrics and a re(de)defined model for oral health in old age**

VDM Verlag Dr. Muller, 2008

ISBN: 978-3-639-02057-1

Current research articles and chosen specialisation literature