Study Degree Program:

Master of Science (M.Sc.) Vision Science and Business (Optometry)

Module Manual

According to the study and examination regulations
for the part-time Master of Science degree program
M.Sc. Vision Science and Business (Optometry) at Aalen University

(Part MAW-TB-VSB-510)

Additional information on the course of study: The following two-page outline shows the modules that are precisely aligned with the European Diploma in Optometry (EDO) and the optometric competencies required of optometrists in Switzerland.

In addition to the 40 credit points in mandatory modules, all master's students have the opportunity to choose at no additional cost for study fee these 80 credit points of elective modules, marked with "EDO". When acquiring these EDO competencies, the chances of having the professional qualification recognized in other European countries increase.

Table of Contents

(The following modules are described in this module manual)

Mandatory Modules

No.	Module Lecture	Type	Study Semester SWS				CP
			1	2	3	4	
29001	**Optometric Project**						5
29101	Optometric Project	V,P	1				5
29102	Optometric Project Presentation	P	X				
29002	**Leadership**						5
29301	Studium Generale	V,P			2		5
29302	Leadership and Communication	V,P			1		
29010	**Master Thesis**						30
9999	Master Thesis	P				X	30
9998	Master Thesis Colloquium	P				X	

Total Mandatory Modules: 40 CP

Elective Modules (Those modules that are compulsory for the European Diploma in Optometry (EDO) are marked).

No.	Module Lecture	Type	Study Semester SWS				CP
			1	2	3	4	
29830	**Human Biology**						5 (EDO)
29401	Ocular Anatomy	V		2			5
29402	Physiology	V		2			
29831	**Pathology**						5 (EDO)
29403	Histology	V,L		2			5
29404	Systems Pathology	V		2			
29832	**Pharmacology**						10 (EDO)
29405	General Pharmacology	V		4			10
29406	Ocular Pharmacology	V		4			
29833	**Ocular Disease**						10 (EDO)
29407	Intro to Ocular Disease 1	V,L		3			10
29408	Intro to Ocular Disease 2	V,L		4			
29834	**Clinical Optometry in the US**						5
29409	Interactive Clinical Cases	V,L		1			5
29410	Clinical Optometry in the US	V,P		1			
29835	**Vision Therapy and Binocular Vision**						10 (EDO)
29411	Binocular Vision Disorders	V,L		4			10
29412	Vision Therapy	V,L		4			
29836	**Pediatric Optometry**						5 (EDO)
29413	Pediatric Optometry	V,L		2			5
29414	Case Management Pediatric	V,P		2			
29837	**Sports Vision**						5
29415	Sports Vision	V,L		1			5
29416	Clinical Observations in the US	P		X			

No.	Module Lecture	Type	Study semester SWS				CP
			1	2	3	4	
29838	**Low Vision**						5 (EDO)
29417	Low Vision	V,L		3			5
29418	Low Vision Project	P		X			
29839	**Scientific Methods**						10 (EDO)
29419	Biostatistics	V,P		2			10
29420	Scientific Methods	V,L		2			
29840	**Contact Lenses and Refractive Surgery**						5 (EDO)
29421	Contact Lenses	V,L		2			5
29422	Refractive Surgery	V,L		2			
29841	**Interdisciplinary Optometry**						5
29423	Interdisciplinary Optometry	V,L		2			5
29424	Interdisciplinary Case Management	P		X			
29842	**Audio and Vision**						5
29425	Audio and Vision	V,L		2			5
29426	Audio and Vision Project	V,L		1			
29843	**Myopia Management**						5
29427	Myopia Management	V,L		2			5
29428	Myopia Case Management	P		X			
29844	**Marketing Management**						5 (EDO)
29429	Marketing and Communication	V,L		2			5
29430	Integral Competencies	V,P		1			
29845	**Business Simulation**						5
29431	Business Strategy	V,P		2			5
29432	Business Simulation Project	V,P		2			
29846	**Sustainable Digital Transformation**						5
29433	Digital Business Models	V,L		2			5
29434	Start-up Management	V,P		2			
29847	**Clinical Experience**						5 (EDO)
29435	Clinical Experience	V,L		1			5
29436	Clinical Experience Portfolio	P		X			
29848	**Clinical Case Studies: Logbook**						5 (EDO)
29437	Clinical Case Studies	V,L		1			5
29438	Case Documentation: Logbook	P		X			
29849	**Research Project**						20
29439	Research Project	P		X			20
29440	Research Project Presentation	P		X			

Total number of elective modules required for the European Diploma in Optometry: 80 CP

Explanations and abbreviations: 1 CP (Credit Point) = 30 hours 60 minutes each of study 1 SWS (semester hour per week) = 15 hours 45 minutes each of class

Type of course
V: Vorlesung (lecture)
L: Labor (lab course)
P: Projekt (project work)

Type of proof of performance
PLK: Klausur (written exam)
PLP: Projekt (project)
PLM: Mündliche Prüfung (oral exam)
PLR: Referat (presentation)
PLL: Lab (laboratory)
PLF: Portfolio (portfolio)

Mandatory Modules

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Module Name		**Optometric Project**				**Module Number 29001**	
CP	**Semester Hours per Week (SWS)**	**Work-load**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Module Duration**
5	1	150	15	135	☒ Winter Semester ☐ Summer Semester	1	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Mandatory module		1st	-	
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29101	Optometric Project	Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Project	1	4	1	PLP 20 minutes graded
	Course type	**Year of Study**					
	Mandatory course	1st	-				
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29102	Optometric Project Presentation	Prof. Dr. Anna Nagl/ Adjunct Faculty	Project	-	1	1	
	Course type	**Year of Study**					
	Mandatory course	1st	-				
Further Study-Related Feedback							

Module Objectives
Professional Competence The students are able to identify problems in the optometric field and describe a solution based on scientific research techniques. They are able to present their findings in the context of evidence-based optometry. Students can apply the knowledge in optometric practice. **Interdisciplinary Competence** The students are able to independently analyze new subject areas and evaluate information. They are able to describe a solution for an identified problem using scientific techniques. They are able to validate procedures to establish the effectiveness of the proposed solution. The students can summarize their findings. The students can evaluate the strengths and weaknesses of their own project. They are able to explain and defend the results in an English presentation.

Module Content
Development (course number 29101) and presentation (course number 29102) of an optometric project in a scientific research field Basics of scientific research - quantitative and qualitative methodological analysis of empirical social sciences - research design

Language	English
Literature	Dependent on the topic of the optometric project. Literature recommendations are provided in the LMS (Learning Management System) Canvas and you can find here on the following website of the library of Aalen University https://www.hs-aalen.de/en/facilities/3
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Leadership**				**Modul Number 29002**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	3	150	45	105	☒ Winter Semester ☐ Summer Semester	3	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Mandatory module		2nd	-	
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29301	Studium Generale	Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Project	2	3	3	PLM 30 minutes graded
	Course type	**Year of Study**					
	Mandatory course	2nd	-				
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29302	Leadership and Communication	Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Project	1	2	3	
	Course type	**Year of Study**					
	Mandatory course	2nd	-				
Further Study-Related Feedback							

Module Objectives
Professional Competence The students can apply fundamental competencies and insights in different communication styles, verbal and nonverbal communication, cultural differences, and cross-cultural communication techniques. The students are able to develop their knowledge of the methods of controlling negotiations. They are able to design the best communication methods, compare various communication models, and assess their advantages and disadvantages. The students are able to describe strategies for conflict management. The students are able to propose methods to set objectives and gather feedback. The students can critically reflect communication as a planned process of interactions. They can apply leadership competencies to customers, employees, and management of all stakeholders. **Interdisciplinary Competence** The students can work on and solve exercises in an intercultural, interdisciplinary team. They are able to combine knowledge from anthropology, psychology, communication studies, and statistics. reflect on problems of understanding and provide understandable explanations. The students are able to critically reflect on their actions and thus develop a professional self-image. They are able to develop conclusions and new approaches to solutions, taking into account social, ecological, and economic aspects. They are able to discuss current and historical topics, critically reflect on social processes, develop an understanding of different perspectives, and help shape society with a sense of responsibility and democratic community spirit. The students are able to represent civic engagement. They are able to engage in civil society which is anchored in the Studium Generale. The students are able to strengthen their soft skills and interdisciplinary skills in professional life.

Module Content
Studium Generale A combination of humanities such as anthropology, psychology, communication studies, and scientific research. The students can develop a research hypothesis and design an experiment to test this hypothesis. Leadership - Managerial role and tasks - Tools for Human Resource Development - Specific leadership scenarios: performance evaluation; feedback; setting objectives - Motivation in the business context - Conflict management Communication - Essentials in planning of communication regarding negotiations - Conversational management in negotiations - Strategies and methodological of controlling communication and negotiations - Exercise of consulting and sales talk at an optometry practice

Language	English
Literature	Script and literature recommendations are provided in the LMS (Learning Management System) Canvas Book recommendation, e.g. Northouse, P. G. (2018). Leader-ship: Theory and practice (8th edition). Sage Publications.
Requirements for Admission to the Module Exam	

Comments	For the Studium Generale, this Master's program offers its own lectures and presentations for all Master's students of the part-time Master's program in English online and on-site at Aalen University
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Master Thesis**					**Modul Number 29010**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Semester**	**Modul Duration**
30	-	900	-	900	☐ Winter Semester ☒ Summer Semester	4	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Mandatory module		2nd	-	
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Semester**	**Type and Duration of Proof of Performance**
9999	Master Thesis	All members of the faculty	Project	-	27	4	Master's Thesis (80%) and its Presentation (PLR) (20%) 20 minutes graded
	Course type	**Year of Study**					
	Mandatory course	2nd	-				
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Semester**	
9998	Master Thesis Colloquium	All members of the faculty	Project	-	3	4	
	Course type	**Year of Study**					
	Mandatory course	2nd	-				
Further Study-Related Feedback							

Module Objectives
Professional Competence The students can design a solution based on scientific research techniques. The students can conduct a detailed review of the literature to support a research hypothesis. They are able to develop a discussion that leads to a statement of a well-defined research question and hypothesis. They are able to design the appropriate methodology for data collection as a means to test the research hypothesis. They are able to summarize the results of the research with a suitable statistical methodology and discuss the inferences obtained from the research. **Interdisciplinary Competence** The students can develop a research design independently and in time. The students can select research methods, justify their decisions, and critically interpret innovative results. They are able to set priorities appropriately and withstand pressure during the course of work. If difficulties arise, they can adapt their actions flexibly. The students can accept criticism and deal with it constructively. The students are able to summarize and justify their research and master's thesis results.

Module Content
Autonomous elaboration of a complex scientific issue, a final presentation of the Master Thesis is given by the student to all members of the degree program and also to all interested e.g., alumni

Language	Master's Thesis: English Master's Thesis Colloquium: English
Literature	Depends on the topic of the Master's Thesis Literature recommendations are provided in the LMS (Learning Management System) Canvas and you can find here on the following website of the library of Aalen University https://www.hs-aalen.de/en/facilities/3 and in the script created for you by the library entitled "INTRODUCTION TO SCIENTIFIC WORK" by Silke Egelhof Aalen University Library, Anton-Huber-Str. 17, 73430 Aalen silke.egelhof@hs-aalen.de, https://www.hs-aalen.de/bibliothek, Version: 14.02.2025
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Elective modules

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Human Biology**	**Modul Number 29830**

CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	4	150	60	90	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters

Target Degree	**Module Type**	**Year of Study**	**Relevance in courses of study**
Master of Science (M.Sc.)	Elective module		

Participation Requirements	

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29401	Ocular Anatomy	Prof. Dr. Denise Goodwin, FAAO, Pacific University College of Optometry	Lecture	2	3	will be announced on the notice board and in the LMS canvas	PLK 120 minutes graded
	Course type	**Year of Study**					
	Elective course						

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**
29402	Physiology	Prof. Dr. Thom Freddo	Lecture	2	2	will be announced on the notice board and in the LMS canvas
	Course type	**Year of Study**				
	Elective course					

Further Study-Related Feedback	

Module Objectives

Professional Competence

The students are able to describe and explain the ocular structures, orbit, and embryogical development of the eye in depth. The students are able to explain knowledge of the blood supply, nervous innervations, and muscles of the ocular structures and the adnexa in relation to the ocular structures. The students can

describe and relate physiology with regard to manifestations of control mechanisms, including homeostasis, blood and circulation, the endocrine system, and hormonal function. They can demonstrate in-depth knowledge on the maintenance of the human body specifically in the areas of the cardiovascular system, respiratory system, renal physiology, and endocrine systems. The students can explain the basic organization of the human body, control systems, maintenance, support, and movement, and relate them to the anatomical structure of each area. They are able to correlate the physiology of systems that are closely linked with the functioning of the eye.

The students can analyze specific examples of how ocular anatomy is related to normal function, how it is involved in the presentation, and subsequent treatment of ocular conditions. The students can solve clinical related problems that involve pathological processes and disease.

Intrerdisciplinary competence
The students are able to perceive and reflect on their personal learning progress. They are able to critically analyze their effectiveness in managing personal time.

Module Content
Ocular Anatomy - Ocular adnexa: eyebrows, superior palpebral sulcus inferior folds, canthi, lid margin, lacrimal system, blood supply and innervation of ocular adnexa - Ocular surface: cornea, conjunctiva, sclera - Anterior uvea: iris, angle of the anterior chamber, ciliary body, blood supply of iris and ciliary body - Lens and vitreous - Choroid and Retinal - Optic nerve: gross landmark, cross section, visual pathway - Eye embryology: development of the eye, clinical correlations - The orbit: bones of orbit, extraocular muscles, nerves of orbit, cranial nerves not related to eye movement, nerves of orbit related to ocular movement, apex of orbit: orbital passages, muscle cone Physiology - Homeostasis: definition and body control system - Blood and circulation: physical characteristics, composition, diagnostic tests - Cardiovascular system: physiological properties of cardiac muscle, specialized tissue, extrinsic and intrinsic control of the heart, cardiac arrhythmias, electrocardiogram and its interpretation, heart as a pump, coronary circulation, hypertension, angina pectoris, myocardial infarction, and congestive heart failure - Renal physiology: capillary dynamics and fluid exchange between blood and interstitial fluid, kidney urine formation, glomerular filtration, tubular function and plasma clearance, regulation of body fluids by the kidney - Respiratory system: pulmonary anatomy, mechanisms of ventilation and breathing, pulmonary circulation, blood transport and tissue gas exchange, ventilation/perfusion relationship, central mechanism of respiratory control, acid base regulation, chemical control of breathing - Endocrine systems: chemical nature, response, transport and mechanism of hormones and action; feedback regulation and hormonal control, pituitary gland, thyroid gland, adrenal glands: biosynthesis and transport of thyroid hormones, physiological functions and control mechanisms, pathological conditions involving the thyroid gland, and treatment, gastro-intestinal hormones: gastrin, cholecystokinin, secretion and gastric inhibitory peptide, endocrine pancreas - Insulin and glucagon as they relate to diabetes mellitus

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Book Recommendations:

	-Remington, Lee Ann; Goodwin, Denise (2022): Clinical Anatomy and Physiology of the Visual System. 4th Edition. Elesevier. *Available at the Aalen University Library.* -Freddo, Thom; Chaum, Edward (2017): Anatomy of the Eye and Orbit. Wolters Kluwer Health. *Electronic full text - campus license / from outside the campus network only for university members after registration* -Sherwood, L. (2015): Human Physiology: From cells to systems.9th Edition. Thompson-Brooks/Cole.
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Pathology**	**Modul Number 29831**

CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	4	150	60	90	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters

Target Degree	**Module Type**	**Year of Study**	**Relevance in courses of study**
Master of Science (M.Sc.)	Elective module		
Participation Requirements			

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29403	Histology	Prof. Thom Freddo, PhD, OD	Lecture Lab	2	2	will be announced on the notice board and in the LMS canvas	PLK 120 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29404	Systems Pathology	Prof. Thom Freddo, PhD, OD	Lecture	2	3	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence

The students are able to explain the functions of all cells, how specific organelles support these functions; and how structure supports function. The students can analyze the organization of cells within tissues, organs, and organ systems and explain their functional significance. The students can describe pathological changes; how pathology relates to clinical presentation, and the difference between the biological and clinical goals of therapy. They are able to demonstrate knowledge of the fundamentals of

the types of pathological processes that underlie the clinical manifestation of disease. The students are able to distinguish between these classes based on cell morphology, including the four classes of specialized cells that make up organs: epithelial tissue, connective tissue, nerve, and muscle. The students are able to relate to other biological science curriculum on completion of this course. The students can evaluate the pathological processes involved in a disease and understand the biological constructs that underlie the clinical presentation, the clinical course, and the rationale for the therapeutic intervention. The students can explain how pathological processes play a role in a select group of systemic disorders that are prevalent among those who are likely to seek the care of an optometrist.

Interdisciplinary Competence
The students can perceive their personal learning progress through continuous exercises. The students can plan their learning schedule with appropriate time off.

Module Content
Histology - Cell organelles and function - Histological techniques - Epithelium/Ocular epithelium General Pathology - Pathology and pathophysiology: cell injury and adaptation and cell death - Tissue responses to damage types of inflammation - Immunology - Neoplastic processes - Metabolic disorders Systems Pathology - Cardiovascular dysfunction and essential primary hypertension - Human deficiency virus: HIV and AIDS - Respiratory systems - Diabetes mellitus - Inflammatory conditions and dermatological lesions

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Book Recommendations: Histology: -Young, B. et al (2006): Wheater's Functional Histology. 5th Edition. Churchill Livingstone. Systems Pathology: - Kumar, V./ Cotran, R./ Astor, J. (2017): Robbins Basic Pathology. 10th Edition. Elsevier.
Requirements for Admission to the Module Exam	
Comments	Minimum 10 students
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Pharmacology**					**Modul Number 29832**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
10	8	300	120	180	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☐ 1 semester ☒ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29405	General Pharmacology	Prof. Dr. Lorne Yudcovitch, MS, FAAO Pacific University College of Optometry	Lecture	4	5	will be announced on the notice board and in the LMS canvas	PLK 120 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29406	Ocular Pharmacology	Prof. Dr. Lorne Yudcovitch, MS, FAAO Pacific University College of Optometry	Lecture	4	5	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students are able to explain the application of principles in pharmacology, biological factors influencing drug response, pharmacokinetics, and drug delivery systems, including the clinical properties of widely systemic drugs and interactions, and ocular and visual side effects of systemic medications in clinical use. The students can analyze the properties, clinical attributes, and practical applications of pharmaceutical agents used in ophthalmic diagnosis and therapy. The students can correlate pharmacology with related medical science, the action, and uses of drugs in advances in medicine. The students can apply pharmacodynamics to therapeutics and correlate its principles with the ocular system. They are also able to evaluate the application and use of therapeutics in systemic and ocular applications in a clinical setting. The students can explain the ophthalmic pharmacology and clinical application of drugs used in the diagnosis and treatment of ocular disease and ocular manifestations of systemic disease with special attention to practical matters, including contraindications, precautions, dosage, administration, side effects, and drug interactions. They can evaluate legal considerations related to the use and prescription of ocular pharmaceuticals.

Interdisciplinary Competence
The sudents are able to efficiently organize their time resources according to the desired result. The students are able to explain bad news to the customer in an appropriate manner

Module Content

Principles of general pharmacology
- General principles in pharmacology
- Routes of drug administration
- Pharmacokinetics of drugs
- Half-life of drug: Protein Binding
- Concentration of unbound drug
- Bio-transformation or metabolism
- Excretion of drugs

General aspects of neuropharmacology: drugs of the autonomic nervous system drugs
- Anatomical subdivision of the autonomic nervous system
- Central nervous system
- Autonomic system
- Neurohumoral transmission in the autonomic system
- Mechanisms for signal termination, cholinergic system
- Mechanisms for signal termination, adrenergeic system

General Pharmacological drugs and their applications
- Cardiovascular drugs, histamine and antihistamine, systemic glucocorticoids, sedative hypnotic and anit-epiletic drugs, analgesics, antipyretics, and anti-inflammatory drug: non-narcotic and narcotic analgesics, antidepressants and antipsychotics, amphetamines and sympathomimetics

Principles of Ocular Pharmacology
- Survey of current optometric drug uses
- Preparation and packaging of ophthalmic drugs
- Drug actions, drug effectiveness, drug safety
- The medical prescriptions
- Factors influencing the objectively demonstrated patient response
- Review of general drug transport mechanisms
- Ocular penetration
- Routes of ocular administration

Optometric diagnostic drugs and their applications

- Clinical use, special hazards/precautions in the use of ophthalmic drugs, surface active drugs, topical anesthetics, autonomic drugs, actions and effects, physical agents, over-the-counter ophthalmic products, dyes, stains, and their uses

Survey of the use of ophthalmic drugs. Mechanisms of how the drugs work, effectivity, and side effects

- Glaucoma drugs, sulfonamides, antibiotics, antiviral agents, antifungal agents, corticosteroids, others

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Book recommendations: General Pharmacology: - Katzung, G. (2013): Basic and Clinical Pharmacology. 13-Edition. Appleton and Lange. Ocular Pharmacology: - Bartlett, D./Jaanus, S./Blaho, K. (2000): Clinical Ocular Pharmacology.4th Edition. Butterworth and Heinemann.
Requirements for Admission to the Module Exam	
Comments	Minimum 10 students
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Ocular Disease**					**Modul Number 29833**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
10	7	300	105	195	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☐ 1 semester ☒ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29407	Intro to Ocular Disease 1	Prof. Dr. Lorne Yudcovitch, MS, FAAO Pacific University College of Optometry Prof. Dr. Michaela Kenning, FAAO, FNAP Pacific University College of Optometry Prof. Dr. Caroline Ooley, FAAO Pacific University College of Optometry Labs: Dr. med. Jochen Wittibschläger and Georg Scheuerer, Oliver Buck, Katja Schiborr, Tom Koellmer, et al., all M.Sc.	Lecture Lab	3	5	will be announced on the notice board and in the LMS canvas	PLL (25%) and PLK (75%) 120 minutes Graded
	Course type	**Year of Study**					

	Elective course					
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**
29408	Intro to Ocular Disease 2	Prof. Lorne Yudcovitch, OD, MS, FAAO Pacific University College of Optometry Prof. Nada Lingel, OD, MS, FAAO Pacific University College of Optometry Prof. Dennis Smith, OD, MS Pacific University College of Optometry Labs: Dr. med. Jochen Wittibschläger and Georg Scheuerer, Oliver Buck, Katja Schiborr, Tom Koellmer, et al., all M.Sc.	Lecture Lab	4	5	will be announced on the notice board and in the LMS canvas
	Course type	**Year of Study**				
	Elective course					
Further Study-Related Feedback						

Module Objectives

Professional Competence

The students are able to describe normal variations and abnormal findings of the anterior segment of the eye. They are able to make a differential diagnosis in red eye presentations and able to formulate a treatment plan and management plan. The students are able to detect and explain the manifestations of dry eye and lacrimal disorders. They are able to detect and correlate the effects of vision/refractive errors with the manifestation of cataracts and evaluate the relationship between ocular findings and systemic diseases where applicable. The students can demonstrate proficiency in using a slit lamp biomicroscopy and lacrimal evaluation, and they can describe the optic nerve head and related variations. They can assess how the condition is managed and treated, including the importance of timely referrals.

The students are able to understand the normal variations and abnormal findings of the posterior segment of the eye. They are able to detect and explain the manifestations of common uveal diseases, macular disease, vitreal variations and disorders, pigmented lesions in the retina and choroid, peripheral retinal variations, and diseases, including the pathophysiological process and optic nerve inflammatory conditions. The students are able to detect and correlate the effects of vision/refractive errors with the manifestation of macula diseases and other inflammatory diseases of the optic nerve. They can evaluate the relationship between ocular findings related to common systemic diseases. They can evaluate ocular vascular manifestations such as diabetes, hypertension, etc., and normal and abnormal pupillary responses and findings and as they correlate with the parasympathetic and sympathetic nervous system, treatment, and underlying causes. The students can explain benign peripheral retinal degenerations, the

formation of retinal holes, tears, and detachments, and the understanding of management and treatment options. The students can explain normal varations and abnormal pigmented related lesions of the retina and choroid. They can analyze and describe fluroscein angiography and optical coherence tomography and how it relates to common vascular, macula, and vitreal disorders. The students are able to apply instruments to diagnose posterior segment disorders such as fundus camera, optical coherence tomography, auxiliary lenses with biomicroscopy, binocular indirect ophthalmoscope, blood pressure measurement, pupil measurements. They are able to develop proficient diagnostic competencies that will be incorporated into a primary eye examination. The students are able to apply diagnostic skills in techniques such as slit lamp, Goldmann tonometry, gonioscopy, direct ophthalmoscope, binocular indirect ophthalmoscope, and the use of an auxiliary lens with biomicroscopy. The students are able to explain results from instruments used to aid in diagnosis or screening, such as optical coherence tomography, fundus camera, and visual fields.

The students are able to correlate the clinical findings with their knowledge of ocular abnormalities. They are able to develop and perform appropriate management and treatment, including the participation of multidisciplinary health care providers. The students are able to recognize and manage anterior and posterior segment ocular emergencies. They are able to describe the incidence of visual blindness as a public health effort related to common manifestations of systemic diseases such as diabetes.

Interdisciplinary Competence

The students can work together as a team. The students are able to communicate with each other in a solution-oriented manner and support each other.

Module Content

Lids, lashes, and adnexa: overview, congenital abnormalities, normal variations, inflammatory and infections, malignant and benign lesions of the lid infection.

- Lacrimal system: overview, dry eye, diagnostic evaluation, abnormal lacrimal tear production, congenital and acquired abnormalities of the lacrimal drainage system.
- Conjunctiva: overview, conjunctiva variations, malignant and benign lesions, infections, and inflammation conjunctiva: bacterial, viral, trachoma inclusion organisms, allergic.
- Episclera and sclera: overview, etiology, diagnosis, classification, clinical course.
- Uvea: overview, classification, clinical presentation, pathogenesis, etiology, diagnostic consideration, management.
- Anterior chamber evaluation. The gonioscopy observed characteristics, normal and abnormal characteristics, open versus closed; angles, reasons for the gonioscopy, pathological presentations.
- Cornea: overview, edema, scarring, neovascularization, examination procedures, corneal degenerations and dystrophies, drug depositions, management and treatment options.
- Lens: overview, lens variations, aging changes, cataracts, clinical evaluation, understanding of surgical treatment.
- Optic nerve head: C/D estimation, variations, examination,
- Glaucoma: diagnosis, primary open angle glaucoma, secondary open angle glaucoma, narrow angle glaucoma, acute angle closure glaucoma, ocular hypertension, suspect glaucoma, methods of detection, understanding of treatment, and understanding of some of the basic surgical treatment.
- Diagnostic labs: slit lamp examination, lacrimal and dry eye evaluation, tonometry, gonioscopy, optic nerve evaluation, application of optical coherence tomography: anterior and posterior segment

Fundus examination: comparison of instruments, diagnostic techniques

- Pupils: pupillary reaction, normal and abnormal, afferent pupillary APD defects, cause of abnormal shape
- Congenital optic nerve abnormalities: common disorders, prognosis, short- and long-term complications, application to visual fields
- Acquired optic nerve abnormalities: optic nerve swelling, typical findings, diagnostic techniques, visual fields, management
- Differential diagnosis of retinal and choroidal lesions: vitreal attachment, hemorrhages, pigmented lesions, exudates, drusen, vascular changes
- Fluorescein angiography: procedure, reasons, side effects, interpretation normal/abnormal,
- Macula: Overview, examination techniques, layers complications, age-related macular degeneration,

CNV formation and causes, NEI clinical findings and application, idiopathic central serous choroidopathy, epiretinal membrane, macula holes, cystoid macula edema,
- Vitreous: overview, common variations, asteroid hyalosis, post-, vitreous detachment, management
- Retinal vascular occlusive disease: retinal vascular pathiophysiology, clinical presentation, complications and management of CRAO, BRAO, CRVO, BRVO
- Hypertensive retinopathy: review, findings and staging, management, blood pressure
- Diabetic retinopathy: review of systemic diabetes, risk factors, pathiophysiology of retinopathy, ETDRS
- Classification system, management protocols, application of studies
- Peripheral retina: overview, common age-related variations, retinal holes, tears, detachment
- Posterior segment inflammations: Understand the systemically and clinical manifestation of the process, toxoplasmosis, toxocara, histoplasmosis
- Diagnostic laboratory: auxiliary lenses with slit lamp, binocular indirect ophthalmoscopy, optical coherence tomography, Goldmann 3 mirror, pupillary testing

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Book Recommendations: - Alexander, L. (2002): Primary Care of the Posterior Segment. 3rd Edition. McGraw-Hill Pub. - Kanski, J. (2019): Clinical Ophthalmology: A Systematic Approach. 9th Edition. Elsevier.
Requirements for Admission to the Module Exam	
Comments	Diagnostic procedure equipment: slit lamp, biomicroscope, tonometer, visual field machines such as frequency doubling perimeter, Humphrey visual fields, Goldmann visual fields, direct ophthalmoscope, penlight, auxiliary diagnostic lenses such as 90D, 78D, 60D, gonioscopy lenses, optical coherence tomography (OCT), fundus camera, blood pressure/stethoscopes
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Clinical Optometry in the US**					**Modul Number 29834**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	2	150	30	120	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29409	Interactive Clinical Cases	Dr. Jennifer Hue, MS, FAAO Associate Clinical Professor SUNY College of Optometry	Lecture Lab	1	2	will be announced on the notice board and in the LMS canvas	PLM 20 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29410	Clinical Optometry in the US	Dr. Jennifer Hue, MS, FAAO Associate Clinical Professor SUNY College of Optometry	Lecture Project	1	3	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives
Professional Competence The students are able to evaluate the role of primary eye care incorporated into patient care in the US and demonstrate entry-level competency in punctual plug removal and foreign body removal. The students can apply optical coherence tomography and its relation to optic nerve and macula disorders. The students can explain evidence-based medicine to ocular pathology and binocular abnormalities. The students can demonstrate competency proficiency with diagnostic skills techniques in the labs of the Aalen partner University in the US. **Interdisciplinary Competence** The students can work together as a team, communicate with each other in a solution-oriented manner, and support each other. The students are able to deal with constructive-critical feedback.

Module Content
Workshop and interactive discussion and presentations Diabetic retinopathy Visual field and fundus findings Glaucoma cases Interpretation of optical coherence tomography and use of the technique with interesting cases Foreign body removal overview and workshop Punctual plugs overview and workshop **Interactive lecture presentations** Grand rounds of Anterior segment ocular disease Grand rounds of Posterior segment ocular disease Emergency anterior and posterior segment ocular presentations Research on myopia and its clinical application Evidence-based medicine cases related to refractive errors Retinal update and research **Clinical observations** Clinical observations in community health centers, veteran's hospitals, or secondary referral centers

Language	English
Literature	A script is provided in the LMS (Learning Management System)
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul DescriptionSPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Vision Therapy and Binocular Vision**				**Modul Number 29835**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
10	8	300	120	180	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☐ 1 semester ☒ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29411	Binocular Vision Disorders	Prof. Dr. Karl Citek, B.S., MEd, FAAO Pacific University College of Optometry Prof. Dr. Ryan Bulson, MS, FAAO Pacific University College of Optometry Labs: Katja Schiborr et al, all M.Sc.	Lecture Lab	4	5	will be announced on the notice board and in the LMS canvas	PLL (25%) and PLK (75%) 120 minutes graded
	Course type	**Year of Study**					
	Elective course						

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**
29412	Vision Therapy	Prof. Dr. Scott Cooper, B.S., MEd, FAAO Pacific University College of Optometry Prof. Dr. Graham Erickson, B.S.	Lecture Lab	4	5	will be announced on the notice board and in the LMS canvas

		FAAO, FCOVD Pacific University College of Optometry Labs: Katja Schiborr et al, all M.Sc.					
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students can explain how binocular vision disorders impact the daily lives of the public. They can analyze the neurophysiology of accommodation, vergence, and eye movements and apply functional aspects of accommodation, vergence, and eye movements. The students can apply psychophysical measurement principles to the evaluation of visuomotor skills. They are able to identify visuomotor anomalies and prioritize in relation to clinical care. They are able to apply various methods of analysis to evaluate individual measurements of specific functions and indirect clues to related functions. The students are able to identify specific visual syndromes based on formal analysis. They are able to prioritize treatment options and apply logically derived prescriptions whenever applicable based on a formally derived diagnosis. The students can integrate the material presented within the current practice setting, whenever applicable. They are able to interpret and utilize horizontal fixation disparity curves in diagnosis and treatment.

The students can explain and apply the bioengineering model of accommodation and vergence to vision therapy. They can apply vision therapy to patients with easily treatable diagnoses. They can evaluate sensory aspects of vision therapy as they relate to improvement or resistance to improvement. The students are familiar with the benefits and limitations of computer-based vision therapy. They are able to identify which patients with vertical deviations should be treated with prism and which should receive vision therapy. They are able to provide vision therapy for vertical deviations and apply the principles of diagnosis and treatment of strabismus. They are able to explain the specialized areas of vision therapy and how to incorporate vision therapy into daily optometry practice. The students can apply their skills in new disciplines such as visual training.

Interdisciplinary Competence
The students are able to work together in an international team. They are able to communicate with each other in a solution-oriented manner and support each other.

Module Content

Binocular Vision Disorders
- Neurophysiology of vision
- Overview of common non-strabismic visuomotor: binocular vision anomalies
- Basic analysis techniques for visuomotor: binocular vision problems; identification of syndromes
- Methodological of case analysis to consider clinical data as individual measurements of specific functions, as indirect clues to related functions and as information to allow identification of specific syndromes.
  These analyzes lead to discussion of treatment options, prioritization of treatments, and prescriptive calculations.
- Application: case examples

Vision Therapy
- Interpretation and utilization of horizontal fixation disparity curves
- Incorporation of vision therapy into daily practice

- Biomechanical model of accommodation and vergence
- Vision Therapy approaches
- Sensory aspects of Vision Therapy
- Computer-based Vision Therapy options
- Vision Therapy for vertical deviations
- Strabismus

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Book recommendations: - Scheiman/Wick (2019): Clinical Management of Binocular Vision. Heterophoric. Accommodative, and Eye Movement Disorders. 5th Edition. Lippincott Williams and Wilkins. - Griffin/Grisham (1995): Binocular Anomalies; Diagnosis and Vision Therapy. Butterworth-Heinemann. - Birnbaum (1993): Optometric management of nearpoint vision disorders. Butterworth-Heinemann. - Ciuffreda/Tannen (1995): Eye Movement Basics for the Clinician. Mosby. - Dictionary of Visual Science
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Pediatric Optometry**	**Modul Number 29836**

CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	4	150	60	90	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters

Target Degree	**Module Type**	**Year of Study**	**Relevance in courses of study**
Master of Science (M.Sc.)	Elective module		-
Participation Requirements			

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29413	Pediatric Optometry	Prof. Dr. John P. Lowery, MEd, FAAO Pacific University College of Optometry Prof. Dr. Hannu Laukkanen, MEd, FAAO, FCOVD-A Pacific University College of Optometry Labs: Katja Schiborr et al, all M.Sc.	Lecture Lab	2	3	will be announced on the notice board and in the LMS canvas	PLL (participation) and PLK (100 %) 90 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29414	Case Management Pediatric	Prof. Dr. John P. Lowery, MEd, FAAO Pacific University College of Optometry Prof. Dr. Hannu Laukkanen, MEd,	Lecture Project	2	2	will be announced on the notice board and in the LMS canvas	

		FAAO, FCOVD-A Pacific University College of Optometry Labs: Katja Schiborr et al, all M.Sc.					
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students are able to assess vision disorders that affect the pediatric population. The students are able to relate basic knowledge of vision development. They are able to apply unique evaluation techniques in pediatric optometry. The students can determine the relationship between vision and learning. They are able to apply optometric case management to the pediatric patient.

Interdisciplinary Competence
The students are able to develop interdisciplinary collaborations. The students are able to communicate and collaborate in scholarly, ethical, respectful, and responsible ways, especially with children.

Module Content

- Overview of vision disorders and developmental milestones that affect the pediatric population
- Basic examination and assessment of the infant, toddler, pre-school, and school-aged child
- Near-point vision analysis and assessment of visual perception
- Relationship between vision and learning
- Lens prescribing and vision therapy in pediatric optometry

Clinic based assignments

- Basic examination and assessment of the infant, toddler, pre-school, and school-aged child
- Near-point vision analysis and assessment of visual perception
- Relationship between vision and learning
- Lens prescribing and vision therapy in pediatric optometry

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Required text: “Clinical Pediatric Optometry” by Press & Moore Suggested Reading: - Scheiman, M./Rouse, M. (2006): Optometric Management of Learning-Related Vision Problems. Elsevier. - Birnbaum, M. (1993): Optometric Management of Nearpoint Vision Disorders. 2. Edition Butterworth-Heinemann.
Requirements for Admission to the Module Exam	
Comments	Minimum 10 students
Last Update	October 21, 2024

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Sports Vision**	**Modul Number 29837**

CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	1	150	15	135	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters

Target Degree	**Module Type**	**Year of Study**	**Relevance in courses of study**
Master of Science (M.Sc.)	Elective module		
Participation Requirements			

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29415	Sports Vision	Prof. Dr. Graham Erickson, B.S., FAAO, FCOVD Pacific University College of Optometry Prof. Dr. Fraser C. Horn, FAAO, Pacific University College of Optometry	Lecture Lab	1	2	will be announced on the notice board and in the LMS canvas	PLP 20 minutes graded
	Course type	**Year of Study**					
	Elective course		-				
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29416	Clinical Observations in the US	Prof. Dr. Willard Bleything, FAAO Distinguished University Professor of Optometry and Public Health at the College of Optometry at Pacific University Katja Schiborr, M.Sc.	Project	-	3	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					

	Elective course			
Further Study-Related Feedback				

Module Objectives

Professional Competence

The students are able to validate research results in support of specific sports vision performance skills, including normative data. They are able to apply strategies for a comprehensive evaluation of athletes to provide a background for protective eyewear issues and to develop vision training plans for athletes. The students are able to integrate sports vision services into an optometric practice. They are able to evaluate the visual skills most relevant to various sports and apply research results in testing for specific sports performance skills. They are able to organize a comprehensive evaluation of athletes competing in various sports. The students are able to manage refractive treatment options including filters and eyewear considerations for safety; and, apply vision training to enhance visual skills essential to sports.

The students are able to develop strategies to implement sports vision within an optometric practice and apply case management strategies for refractive components, enhancement filters, contact lenses, and refractive surgery for athletes.

Interdisciplinary Competence

The students are able to work together in an international team, communicate with each other in a solution-oriented manner, and support each other. The students are able to present new ideas and solutions.

Module Content

The theory and practice of sports vision are presented in detail. The course emphasizes exploration of the research base supporting sports vision services, analysis of visual and environmental task demands in sports, evaluation procedures for athletes, and optometric intervention approaches. Strategies for practice development are discussed. The emphasis of the lab portion will be the integration of didactic information with instrumentation used in sports vision.
A sports vision screening is conducted with a sports team in the US. This project involves designing the evaluation, creating screening forms, setting up and conducting the screening, analyzing data, and creating reports.

Language	English
Literature	A script is provided in the LMS (Learning Management System) Erickson, G. (2007): Sports Vision: Vision Care for the Enhancement of Sports Performance. Butterworth-Heinemann.
Requirements for Admission to the Module Exam	
Comments	Minimum 10 students
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Low Vision**				**Modul Number 29838**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	3	150	45	105	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29417	Low Vision	Georg Scheuerer, M.Sc., Andreas Polzer	Lecture Lab	3	4	will be announced on the notice board and in the LMS canvas	PLK 60 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29418	Low Vision Project	Georg Scheuerer, M.Sc., Andreas Polzer	Project	-	1	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence

The students are able to explain the usage, application and dispensing, including fitting of magnifying aids. students are able to apply low vision aids and explain how to use and handle them. The students are able to assess methods for patients whose vision cannot be significantly improved with conventional spectacles or contact lenses, in order to make the most of their residual vision using magnifying systems and imaging technology. The students can apply their competencies in new disciplines such as low vision.

Interdisciplinary Competence
The students are able to work together in an international team, communicate with each other in a solution-oriented manner, and support each other. The students are able to reflect the psychology and behavior of a visually handicapped person. They are able to identify how blind and visually impaired individuals function and describe their needs, including social services.

Module Content
- Pathology (diabetic retinopathy, glaucoma, macula degeneration, retinopathia pigmentosa) - Visual impairment and blindness - Medical filter-glasses - Management of life with reduced vision - Mobility and orientation - Social assistance, financial aids - Development of vision in childhood - Vision and elder patients - Electrophysiological diagnostics - Electronic retinal systems - Simulation and aggravation - Fitting of Low Vision aids under real circumstances - Electronically visual systems - Social advisory service (social and technical criterions)

Language	English
Literature	A script and further literature recommendations are available in the LMS (Learning Management System) Canvas Book recommendations: - Weale: The Senescence of Human Vision - Publications in peer reviewed optometry journals Hammerstein: Rehabilitation in der Augenheilkunde - Low Vision Stiftung (Hrsg): 2. Interdisziplinärer Low Vision Kongress, Diagnostik, Therapie, Rehabilitation - Lund, Waubke (Hrsg): Ophthalmologische Rehabilitation - Wagner: Sehbehinderung und soziale Kompetenz
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Rainer Börret	

Modul Name	**Scientific Methods**					**Modul Number 29839**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
10	4	300	60	240	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☐ 1 semester ☒ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29419	Biostatistics	Prof. Dr. Wilhelm Kleppmann/ Prof. Dr. Jürgen Stiefl Dr. Katharina Breher	Lecture Project	2	2	will be announced on the notice board and in the LMS canvas	PLR (50%) 5 minutes and PLP (50%) 20 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29420	Scientific Methods	Prof. Dr. Rainer Börret/Dr. Bernd Dörband/ Dr. Katharina Breher, Katja Schiborr, M.Sc.	Lecture Lab	2	8	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives
Professional Competence The students are able to apply biostatistics in laboratory experiments as well as in research. The students are able to evaluate studies in terms of scientific methods, weaknesses, and applicability of their presentation. Students are able to list and describe the general steps of scientific methods, apply scientific methods critically in their academic work, use scientific methods to ask critical and logical questions, and design appropriate studies. **Interdisciplinary Competence** The students can design a solution based on scientific research techniques. The students are able to analyze new subject areas and evaluate information, argue scientifically, document a topic scientifically, and discuss it professionally. The students can design, plan, prepare, and carry out projects. The students can reflect constructive-critical feedback.

Module Content
- Introduction to research methodology in the optometric field - Formulation of a research question and study design in the optometric field - Consideration and management of ethical issues - Descriptive and experimental studies - Case-control studies - Cross-sectional studies - Cohort studies (prospective and retrospective) - Critical analysis of research papers

Language	English
Literature	Scripts and Literature recommendations are provided in the LMS (Learning Management System) Canvas and you can find here on the following website of the library of Aalen University https://www.hs-aalen.de/en/facilities/3 and in the script created for you by the library entitled “INTRODUCTION TO SCIENTIFIC WORK” by Silke Egelhof Aalen University Library, Anton-Huber-Str. 17, 73430 Aalen silke.egelhof@hs-aalen.de, https://www.hs-aalen.de/bibliothek, Version: 14.02.2025
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Contact Lenses and Refractive Surgery**				**Modul Number 29840**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	4	150	60	90	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29421	Contact Lenses	Mike Wyss, M.Sc.	Lecture Lab	2	3	will be announced on the notice board and in the LMS canvas	PLK 60 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29422	Refractive Surgery	Mike Wyss, M.Sc.	Lecture Lab	2	2	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students can apply contact lens fitting in pediatric and presbyopic populations and specialty fittings (eg, keratoconus after corneal transplants or corneal surgery). They are able to compare different methods of contact lens fittings and choose the most appropriate method depending on the patient. They are able to identify and analyze fittings and contact lens wear problems in order to solve them in cooperation with the patient. The students are able to demonstrate their competencies in contact lens

fittings, and are able to discuss, explain, and perform examinations and management of patients who want to undergo or who have undergone refractive surgery. The students are able to apply competencies in the areas of (1) patient counseling and (2) preoperative and postoperative evaluations.

The students are able to fit contact lenses for children, 40+ and undertake specialty fittings. The students are able to compare various models in the area of special contact lenses and assess their advantages and disadvantages.

Interdisciplinary Competence
The students are able to explain problem solutions to customers in an understandable way. The students are able to apply their skills to specific tasks both independently and in a team.

Module Content
Contact Lenses - New materials in soft and rigid contact lenses, their specifications, and usage - Current studies and results in relation to contact lenses and solutions - Effect of dry eye and contact lens usage - Silicon hydrogels and alternatives contact lens material options - Update on keratoconus, complications and new studies, fitting options, contact lens fittings, and challenges - Pediatric fitting and challenges, contact lens options - Cases and usage of bandage contact lenses - Contact lens options for the pediatric population, including management - Therapeutic use of contact lenses in pathological corneal disorders - Types and principles of fitting and usage of multifocal lenses - Special and specific anamnesis related to contact lenses **Refractive surgery** - Patient care - Management of patients with refractive surgery - Refractive surgery options - Techniques used in the preoperative assessments - Identification of postoperative complications - Referral pathways - Legal, professional and ethical obligations

Language	English
Literature	Scripts and Literature recommendations are provided in the LMS (Learning Management System) Canvas
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Interdisciplinary Optometry**				**Modul Number 29841**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	2	150	30	120	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29423	Interdisciplinary Optometry	Katja Schiborr, Stephan Berner, both M.Sc.	Lecture Lab	2	4	will be announced on the notice board and in the LMS canvas	PLL graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29424	Interdisciplinary Case Management	Katja Schiborr, Stephan Berner, both M.Sc.	Project	-	1	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students can apply optometric services and manage resources in an interdisciplinary environment. The students are able to manage patient needs with others across healthcare disciplines. The students are able

to describe primary eyecare issues, taking into account a variety of professional viewpoints.

Interdisciplinary Competence
The students are able to identify and close their own knowledge gaps. The students are able to understand the solutions of other people, and bring them together to form a coordinated result.

Module Content
Interdisciplinary Optometry with a focus on - Assessment, management, and symptom-based case management of ocular and related systemic health conditions - Conduct evidence-based research and use that to improve evidence-based clinical decision-making competencies in an interdisciplinary environment

Language	English
Literature	Scripts and Literature recommendations are provided in the LMS (Learning Management System) Canvas
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Steffen Kreikemeier	

Modul Name	**Audio and Vision**	**Modul Number 29842**

CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	3	150	45	105	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters

Target Degree	**Module Type**	**Year of Study**	**Relevance in courses of study**
Master of Science (M.Sc.)	Elective module		
Participation Requirements			

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29425	Audio and Vision	Prof. Dr. Steffen Kreikemeier	Lecture Lab	2	3	will be announced on the notice board and in the LMS canvas	PLM 30 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29426	Audio and Vision Project	Prof. Dr. Steffen Kreikemeier	Lecture Lab	1	2	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students are able to explain central auditory and visual processing disorders and their therapy. They are able to describe disorders early by knowing their signs and symptoms and referring them to specialists.

They are able to explain the perceptual problems of patients associated with learning disabilities, traumatic brain injury, stroke, and developmental abnormalities. They are able to analyze procedures for modifying visual performance associated with hearing and co-manage strategies. The students are able to detect dyslexia in the pediatric population and know the fundamental importance of early detection. They are able to refer an affected person and co-manage auditory-visual processing disorders by enhancing the vision part.

Interdisciplinary Competence
The students can to assume responsibility on the team. The students are able to justify their decisions.

Module Content
- Development of the brain with a focus on auditory and visual processing - Central auditory/visual processing - Tests for auditory and visual perception - Therapy of central auditory and visual processing disorders

Language	English
Literature	Scripts and Literature recommendations are provided in the LMS (Learning Management System) Canvas
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Myopia Management**				**Modul Number 29843**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	2	150	30	120	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29427	Myopia Management	Jessica Gruhl, M.Sc. Maximilian Aricochi, M.Sc.	Lecture Lab	2	3	will be announced on the notice board and in the LMS canvas	PLK 60 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29428	Myopia Case Management	Jessica Gruhl, M.Sc. Maximilian Aricochi, M.Sc.	Project		2	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives
Professional Competence The students can apply the management of myopia. The students can assess pathologies of myopia and the associated public health implications. The students can apply independent, advanced-level judgments to appropriately prescribe myopia management in clinical practice while considering current issues relevant to myopia management research. The students are able to describe and apply accepted therapy options in myopia management and assess the relevance of the studies. The students can apply scientific and practical competence in the optical aspects of designing spectacle lenses. They are able to propose spectacle lens design factors for comfortable vision, such as aberrations due to curvature, thickness, and other eyeglass design criteria. The students are able to apply appropriate training and experience in effective communication to a variety of audiences, including one-on-one interactions with myopic children, their parents and families, and other health professionals involved in their care. The students are able to manage practical experience with the optical features of spectacles. They are able to integrate the technical and optical characteristics of lenses with physiological consequences in vision. **Interdisciplinary Competence** The students are able to communicate and collaborate in scholarly, ethical, respectful, and responsible ways. The students demonstrate a commitment to lifelong learning.

Module Content
- An evidence-based approach to myopia diagnosis, management and control - From the development of refractive error to the physiological and optical aspects of designing spectacle lenses for myopia management

Language	English
Literature	Scripts and literature recommendations are provided in the LMS (Learning Management System) Canvas
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name	**Marketing Management**	**Modul Number 29844**

CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	3	150	45	105	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters

Target Degree	**Module Type**	**Year of Study**	**Relevance in courses of study**
Master of Science (M.Sc.)	Elective module		
Participation Requirements			

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29429	Marketing and Communication	Prof. Dr. Tanja Beament/ Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Lab	2	3	will be announced on the notice board and in the LMS canvas	PLP 20 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29430	Integral Competencies	Prof. Dr. Tanja Beament/ Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Project	1	2	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives
Professional Competence The students are able to apply major components of marketing strategies. The students are able to apply different communication styles, in verbal and non-verbal communication, in cultural differences, and in cross-cultural communication techniques. The students are able to communicate effectively with the patient using a broad range of communication styles appropriate to the educational level, cognitive ability, and age profile of the patient. The students are able to communicate in a respectful tone and manner, listen actively and communicate effectively, ask questions to understand the concerns and viewpoints of the patient, communicate in a timely manner, be aware and responsive to verbal and non-verbal communication, recognize and adjust to cultural differences, and use effective cross-cultural communication skills if appropriate. The students are able to demonstrate a fundamental understanding, knowledge and responsibility for the legal obligations of optometric practice, the ethical and cultural standard, and a safe environment through quality assurance and risk management strategies. The students can apply strategies to promote health and prevent diseases, and participate in continuing professional development activities to maintain competencies and knowledge in areas of optometric practice. The students can develop a marketing strategy for an optometrists practice and/or an industrial company. They are able to plan marketing concepts and apply tools (eg, strategy design and marketing management). They are able to evaluate various marketing tools and develop a strategic plan that best suits their business. The students can develop a more critical and measured reading of the optometric and medical literature; the application of current and best research evidence to clinical care; study design and its transfer to clinical care; and a community perspective to individual patient care. **Interdisciplinary Competence** The students are able to communicate with a diverse group of patients in a way that is appropriate for the patient. She students are able to reflect on their own behavior, analyze conflicts, and develop solution strategies. The students are able to develop new ideas and solutions and take economic, social, ecological, cultural, and ethical aspects into account. The students can perceive their personal learning progress as part of continuous exercises and can deal with constructive-critical feedback based on this.

Module Content
Marketing and Communication - Marketing methods, tools, and planning process for optometrists - Service marketing for optometrists - Communication styles, verbal and nonverbal communication, cultural differences, cross-cultural communication techniques **Integral Competencies** - Patient concerns and views - Communication with diverse groups of patients with a variety of ophthalmic conditions and needs - Provide information in a way that is appropriate to the patient - The ability to break bad news in an appropriate and considerate manner.

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Canvas Book recommendations:

	- Nagl, A. (2017): Der Marketingplan. Die 10 Gebote erfolgreichen Marketings. 2. Edition. Beck Verlag. München. - Nagl, A. (2004): Dienstleistungsmarketing in der Augenoptik: Ein Ratgeber für die Praxis. DOZ-Verlag. Heidelberg.
Requirements for Admission to the Module Exam	
Comments	Minimum 10 students
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Business Simulation**				**Modul Number 29845**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	4	150	60	90	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29431	Business Strategy	Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Project	2	3	will be announced on the notice board and in the LMS canvas	PLP 20 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29432	Business Simulation Project	Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Project	2	2	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students are able to identify strategic decisions and apply concepts in leadership, strategy,

management, and marketing. They can describe the business characteristics of an optometry practice, such as mission statements, calculations, and budget planning. They are able to manage complex relationships within the business itself and in connection with competitors. The students are able to enhance their company's profitability and market position.

Interdisciplinary Competence
The students are able to make complex decisions under pressure. The students can work on and solve exercises in an intercultural team. The students can apply project management. The students can represent and present their personal ideas on a professional level.

Module Content
Business tools and methods related to this business project in the field of optometry, e.g.: - Mission Statement and Values - Balanced Scorecard - Calculation, direct costing, and break-even analysis - Budget planning - New management concepts and Key Performance Indicators (KPIs) Business simulation, strategic and operational game in the field of optometry - Planning of a virtual business unit - Management game with computer simulation - Presentation of strategies, milestones and results

Language	English
Literature	Script, relevant textbooks, handouts, and templates are provided in the LMS (Learning Management System) Canvas: - Manual of the management game - Book recommendations for deepening the knowledge in special fields
Requirements for Admission to the Module Exam	
Comments	Minimum 10 students
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Sustainable Digital Transformation**				**Modul Number 29846**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	4	150	60	90	☒ Winter Semester ☐ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses

Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29433	Digital Business Models	Prof. Dr. Ralf von Baer/ Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Lab	2	2	will be announced on the notice board and in the LMS canvas	PLP 30 minutes graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29434	Start-up Management	Prof. Dr. Anna Nagl/ Adjunct Faculty	Lecture Project	2	3	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students are able to create a business model for a sustainable and innovative idea. The students are able to analyze strategic choices and operational implementation of digital transformation and sustainability. The students are able to develop a business plan and a business model. The students can explain the entrepreneurial process and the sources of funding that are relevant at different stages of the development of companies. The students plan a start-up company. The students are able to evaluate alternative strategic options for innovative optometry practices.

Interdisciplinary Competence
The students are able to sharpen their environmental awareness and strengthen their resource-conscious thinking. The students are able to develop and present a project in English. The students are able to demonstrate entrepreneurial skills.

Module Content
- New digitally and artificial intelligence - enhanced business models emphasizing platforms and ecosystems - Development of a design-driven organizational culture that fosters successful innovation and sustainable business models - Methodology design thinking Development of a business model and a business plan, e.g. - for a project within a company - for a start-up company including - Drafting and realization of an application-oriented business - Facts and data about the formation of a start-up - Descriptions, errors in designing a business plan - Application of calculation realization of a business case - etc.

Language	English
Literature	Scripts are provided in the LMS (Learning Management System) Canvas. Book recoommendations: - Bozem, K./Nagl, A. (2022): Digitale Geschäftsmodelle erfolgreich realisieren. Business Model Building mit Checklisten und Fallbeispielen. Springer Gabler Verlag. Wiesbaden. - Nagl, A. (2020): Der Businessplan. Geschäftspläne professionell erstellen. 10. Edition. Springer Gabler Verlag. Wiesbaden.
Requirements for Admission to the Module Exam	
Comments	Minimum 10 students
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Clinical Experience**				**Modul Number 29847**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	1	150	15	135	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Courses/ lectures							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29435	Clinical Experience	Dr. Matjaz Mihelcic Tom Koellmer, M.Sc.	Lecture Lab	1	4	will be announced on the notice board and in the LMS canvas	PLL (50%) und PLP (50%) graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29436	Clinical Experience Portfolio	Dr. Matjaz Mihelcic Tom Koellmer, M.Sc.	Project	-	1	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Learning goals/ competence

Professional Competence
The students are able to identify, analyze, and structure problems in the clinical field. They are able to design a solution to the problem using scientific techniques. The students can also carry out validation procedures to establish the effectiveness of the proposed solution. The students can perform a general ocular health assessment in the general management of patient conditions in relation to referrals and consultations.

Interdisciplinary Competence
The students are able to design, plan, prepare, and perform solutions for patients. The students are able to explain to customers these solutions.

Module Content

These competencies are required for students seeking increased clinical knowledge and experience in comprehensive clinical care. Each part is designed to enhance skill building in all areas of clinical care and provide advanced clinically relevant education for optometrists in training who have prior experience in hospital care.

The course is designed to expand clinical knowledge and critical thinking competencies by building on existing knowledge and clinical experience and using case study presentations to advance the clinical thought process.

Each presentation consists of lectures and case studies and is designed to be interactive and participatory. They are able to develop and present cases as a practical learning tool and in the promotion of excellence in patient care. Students are able to analyze best practices and present cases accepted universally.

Comprehensive case modules are offered in each of the following areas:

1. Visual optics, including:
a. Refraction and refractive errors
b. Binocular vision
c. Rehabilitation of low vision
d. Optical appliances

2. Anterior segment
a. Contact lenses
b. Conjunctiva, cornea, sclera
c. Kerato-refractive surgical considerations
d. Lens and iris

3. Posterior segment
a. Vitreous
b. Retina
c. Optic nerve, including glaucoma

4. Miscellaneous
a. Ocular trauma
b. Uveitis/systemic disease
c. Orbital anomalies/oculoplastics
d. Neurological disorders
e. Basic pharmacology considerations
f. Refractive Surgery

Based on: https://www.ecoo.info/wp-content/uploads/2016/10/Part-III-ECOO-Portfolio-Guidance-Feb-2021.pdf [version April 12, 2025]

Language	English
Literature	Script and relevant textbooks, handouts, and templates are provided in the LMS (Learning Management System) Canvas
Requirements for Admission to the Module Exam	
Comments	These 130 cases are required to meet the requirements of the European Optometry Diploma.
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul DescriptionSPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Anna Nagl	

Modul Name		**Clinical Case Studies: Logbook**				**Modul Number 29848**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
5	1	150	15	135	☐ Winter Semester ☒ Summer Semester	will be announced on the notice board and in the LMS canvas	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module				
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29437	Clinical Case Studies	Georg Scheuerer, Oliver Buck, both M.Sc.	Lecture Lab	1	4	will be announced on the notice board and in the LMS canvas	PLL graded
	Course type	**Year of Study**					
	Elective course						
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29438	Case Documentation: Logbook	Georg Scheuerer, Oliver Buck, both M.Sc.	Project	-	1	will be announced on the notice board and in the LMS canvas	
	Course type	**Year of Study**					
	Elective course						
Further Study-Related Feedback							

Learning goals/ competence

Professional Competence
The students are able to assess patients with and without visual disorders/diseases, especially clinically. The students can apply optometric examination techniques. The students are able to assess patients (anterior and posterior segment) and detect abnormal conditions, evaluate the central retina (optic nerve and fovea), and develop the logbook. The students can discriminate between healthy and pathological

findings that might be presented differently from “textbook cases”. They are able to organize and grade the findings and know when referrals are necessary. The students are able to apply techniques to detect eye diseases through practical experience with feedback from supervising ophthalmologists and lecturers. They are able to apply evidence-based optometric knowledge and practical experience to make the right decision.

Interdisciplinary Competence
The students can summarize their findings. The students are able to justify their findings in a suitable way for the patients.

Module Content
“Primary Care Eye Examinations (5 Cases): All records should cover a complete eye examination, starting with a summary of the history, any previous treatment up to the time of the examination, and follow the ECOO-guidance. The five patients selected should include two with binocular vision anomalies, one patient with low vision, and one patient 12 years of age or younger. Abnormal Ocular Condition Cases (5 Cases): All records should cover a complete eye examination, starting with a summary of the history, any previous treatment up to the time of the examination, and follow the ECOO-guidance. The discussion should include a description of the abnormal ocular condition and how the presentation in this case differs from the description in the text book. Three of the cases should include letters referring the patient to an ophthalmologist or to the next step in the health system ladder. Contact lenses (5 Cases) including 1 RGP fitting: All records should cover a complete eye examination, starting with a summary of the history, any previous treatment up to the time of the examination, and follow the ECOO-guidance. Contact lens fittings should be illustrated with appropriate diagrams or photographs. Dispensing (5 Cases): All records should cover a complete eye examination, starting with a summary of the history, any previous treatment up to the time of the examination, and follow the ECOO-guidance. These records should be from patients whose ophthalmic dispensing presented particular challenges. Outline the nature of the dispensing difficulty and justify the solution chosen.

Language	English
Literature	Based on: https://www.ecoo.info/wp-content/uploads/2016/10/Part-III-ECOO-Portfolio-Guidance-Feb-2021.pdf [version April 12, 2025] Relevant textbooks, handouts, and templates are provided in the LMS (Learning Management System) Canvas. In German language: Scheuerer, G., Patel, B., Nagl, A. (2014): Klinisches Logbuch: Best Practice Dokumentation. Schriftenreihe aus dem DOZ-Verlag 33. Optische Fachveröffentlichung. Heidelberg.
Requirements for Admission to the Module Exam	
Comments	20 detailed case records that demonstrate experience in all areas of optometric practice are required to satisfy the requirement of the European Optometry Diploma.
Last Update	April 12, 2025

Aalen University	**Faculty** Optics and Mechatronics	Modul Description SPO 510
	Degree Program M.Sc. Vision Science and Business (Optometry)	
	Module Manager Prof. Dr. Dirk Flottmann	

Modul Name	**Research Project**					**Modul Number 29849**	
CP	**Semester Hours per Week (SWS)**	**Workload**	**Workload Class**	**Workload Self-Study**	**Offered**	**Se-mester**	**Modul Duration**
20	-	600	-	600	☐ Winter Semester ☒ Summer Semester	1	☒ 1 semester ☐ 2 semesters
Target Degree			**Module Type**		**Year of Study**	**Relevance in courses of study**	
Master of Science (M.Sc.)			Elective module		1st	-	
Participation Requirements							

Included Courses							
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	**Type and Duration of Proof of Performance**
29439	Research Project	Prof. Dr. Dirk Flottmann/Prof. Dr. Anna Nagl/ Adjunct Faculty	Project	-	17	2	PLR 20 minutes graded
	Course type	**Year of Study**					
	Elective course	1st	-				
Course No.	**Course Name**	**Lecturer**	**Type**	**Semester Hours per Week (SWS)**	**CP**	**Se-mester**	
29440	Research Project Presentation	Prof. Dr. Dirk Flottmann/Prof. Dr. Anna Nagl/ Adjunct Faculty	Project	-	3	2	
	Course type	**Year of Study**					
	Elective course	1st	-				
Further Study-Related Feedback							

Module Objectives

Professional Competence
The students are able to design, plan and organize a research project. The students are able to analyze new subject areas and evaluate information. The students are able to evaluate scientific material and subsequently summarize it. The students can design a solution based on scientific research techniques. The students are able to develop a 'statement of the problem' and frame the research question (hypothesis) and analyze and interpret the research results. The students are able to select research methods, justify their decisions, and critically interpret innovative results. The students are able to analyze and interpret the results/outcomes and summarize, conclude, and draw inferences obtained from the research. The students are able to develop further practice in scientific and professional writing.

Interdisciplinary Competence
The students are able to work on a project independently and on time in which they can analyze, structure, and solve complex problems. The students are able to write a research paper and present and publish it in English. The students are able to argue scientifically.

Module Content
- Preparing a research paper in a scientific research field in theory and practice: applied sciences - Presentation of the research work - Discussion of the methodology and results of the research project and presentation

Language	English
Literature	Depends on the topic of the research project Literature recommendations are provided in the LMS (Learning Management System) Canvas and you can find here on the following website of the library of Aalen University https://www.hs-aalen.de/en/facilities/3 and in the script created for you by the library entitled "INTRODUCTION TO SCIENTIFIC WORK" by Silke Egelhof Aalen University Library, Anton-Huber-Str. 17, 73430 Aalen silke.egelhof@hs-aalen.de, https://www.hs-aalen.de/bibliothek, Version: 14.02.2025
Requirements for Admission to the Module Exam	
Comments	
Last Update	April 12, 2025