

Martin Wirenfeldt Nielsen  
Department of Regional Health Research  
IRS - Esbjerg and Grindsted Hospital  
Email: martin.nielsen@rsyd.dk

## 1. Formel Pædagogisk Uddannelse

Sundhedsvæsnets organisation og ledelse – SOL 2  
Sundhedsstyrelsen, 24.-26. august 2015

Sundhedsvæsnets organisation og ledelse – SOL 3  
Region Midtjylland, 21.-23. oktober og 24. november 2014

Generelt kursus i vejledning i introduktionsuddannelsen  
Region Nordjylland, 24.-25. august og 12. september 2011

Ledelse, administration og samarbejde – LAS 1  
HR Uddannelse og Udvikling Region Syddanmark, 6.-7. april 2011

Generelt kursus i kommunikation, modul 2 i turnusuddannelsen  
cvu vita Holstebro, 19. november og 4. december 2007

Generelt kursus i kommunikation, modul 1 i turnusuddannelsen  
cvu vita Holstebro, 29.-31. oktober 2007

Generelt kursus i læring i turnusuddannelsen  
Center for kompetenceudvikling Aalborg, 17.-18. september 2007

Ph.d.-kursus Modul 5 Oral and Written Communication in Biomedicine  
Syddansk Universitet, 10. november – 13. December 2004

Ph.d.-kursus How to write a successful grant application  
Københavns Universitet, 27. – 28. august 2004

Ph.d.-kursus Modul 2 Medicinsk etik og videnskabsteori  
Syddansk Universitet, 24. – 28. maj 2004

Ph.d.-kursus Modul 1 Forskningsmetoder indenfor Sundhedsvidenskab  
Syddansk Universitet, 22. – 25. september 2003

## 2. Uddannelsesadministrative Opgaver

2018-now: Member of the administrative board for the medical school at The Faculty of Health Sciences at University of Southern Denmark, Spring 2018 – now

2013-15: Member of the committee for evaluating and employing residents in the pathology residency program in Region Midt and Nordjylland, Winter 2013 – Summer 2015

2006: Member of the interview panel for admission to the University of Southern Denmark medical school via kvote 2, Spring 2006

2005-06: Member of the administrative board for the graduate school at The Faculty of Health Sciences at University of Southern Denmark, January 2005 – December 2006

## 3. Erfaring med Undervisning, Vejledning og Eksamen

Fifth semester Klinikprofil og paraklinisk profil – Profilmag in the master program in medicine at University of Southern Denmark, 2019-now

The fifth semester in the master program in medicine at University of Southern Denmark has five different profiles from which the students can choose one. The curriculum for two of these profiles the clinical and paraclinical profiles include three elements – a shared profile course, a clinical/paraclinical internship, and the master's thesis. I am responsible for planning the paraclinical profile. Together with a colleague who is responsible for the clinical profile we have founded the brand new shared profile course where the students are introduced to working in a clinical setting and are prepared for the upcoming task of writing their master's thesis. I teach two classes myself about how to plan a scientific project and how to write a scientific thesis.

Module K6 Retsmedicin, nyrer og urinveje og kræft in the master program in medicine at University of Southern Denmark, 2018-now

This course covers a mixed curriculum of forensic medicine, kidneys and urinary tract, and cancer. I was given with the opportunity to give a lecture on diagnostic pathology relating to cancer diagnostics and oncology, which is the basis of day-to-day work as an anatomical pathologist. It is a good way of presenting to the students what pathology is and how clinicians can interact with pathologists in the clinical diagnostic work involved in modern cancer diagnostics and treatment.

Module K5 Nervesystem, somatiske og psykiske sygdomme in the master program in medicine at University of Southern Denmark, 2018-now

With the revision of the curriculum for the master program in medicine at University of Southern Denmark the K11 course about central nervous system diseases was revised and replaced by the K5 module somatic and mental diseases in the nervous system. I continue taking particular interest in this module as the nervous system is my primary field of work. I give lectures on tumors in the central nervous system, cerebrovascular diseases and muscle pathology. I have also authored multiple choice exam questions for this module.

Module K3 Fordøjelseskanalen, ernæring og metabolisme in the master program in medicine at University of Southern Denmark, 2019

This course is about the human digestive system, nutrition, and metabolism. I taught a single lecture in this course about the anatomy, and neoplastic and non-neoplastic pathological changes in the upper gastrointestinal tract – esophagus, stomach, and small bowel.

Module B6 Ernæring og vækst in the bachelor program in medicine at University of Southern Denmark, 2017-now

In this course about nutrition and growth in the bachelor program in medicine at University of Southern Denmark there are some lessons about the gross and microscopic anatomy of the gastrointestinal tract which I have enjoyed teaching. This includes teaching both normal anatomy and physiological function of the gastrointestinal tract as well as inflammatory pathology.

Module B10 Angreb og forsvar in the bachelor program in medicine at University of Southern Denmark, 2016-now

The B10 module in the bachelor program in medicine at University of Southern Denmark includes microscopic exercises on acute inflammation where I had the opportunity to present various cases of pathological changes related to acute inflammation. In addition I have authored exam questions for the multiple-choice exam for this course.

SU810 Human Pathophysiology in the master program in biomedicine at University of Southern Denmark, 2016-now

The master program in Biomedicine at University of Southern Denmark includes a comprehensive course in human pathophysiology. Here I have the pleasure of heading a module on musculoskeletal disorders. I teach the students in smaller classes with focus on the pathophysiology of musculoskeletal diseases such as rheumatoid arthritis and inflammatory myopathies. I have authored and corrected essay style exam questions for the annual exam.

Module K14 Kliniske kurser in the master program in medicine at University of Southern Denmark, 2016-2019

Shortly prior to the final exams for the master's degree in medicine at University of Southern Denmark the students had a series of lectures covering various topics in clinical medicine. It was a great pleasure having the opportunity to give a lecture on diagnostic pathology relating to cancer diagnostics and oncology, which is the basis of day-to-day work in a pathology department. This module also included demonstrations of specimens from surgical pathology where I have presented fixed surgical resection specimens from various organs for the students in a show-and-tell style of anatomic pathology.

Module K5 Sygdomme i fordøjelseskanalen in the master program in medicine at University of Southern Denmark, 2016

This module covers diseases in the gastrointestinal tract where I had the pleasure of giving four lectures on neoplastic diseases of the colon and rectum, diseases of the upper gastrointestinal tract, liver and pancreas pathology, and non-neoplastic diseases of the colon, respectively. These are quite complex topics and highly relevant for any physician, and subjects with which I have worked on a daily basis in diagnostic pathology.

Module K11 Sygdomme i Centralnervesystemet in the master program in medicine at University of Southern Denmark, 2015-2017

The master program in medicine at University of Southern Denmark included a comprehensive course in central nervous system diseases. The central nervous system is my main area of interest scientifically and clinically, therefore I take a particular interest in this module. I have given lectures in general neuropathology and the pathology in neurodegenerative diseases. This module also encompasses demonstration of brain autopsy specimens covering a wide range of neuropathological conditions in the central nervous system. I have also authored multiple choice exam questions for this module.

Module B12 Fra rask til syg in the bachelor program in medicine at University of Southern Denmark, 2015-now  
The bachelor program in medicine at University of Southern Denmark includes the B12 module, a comprehensive course where the students are thought about autopsy and the medical procedures preceding an autopsy including the inquest and how to complete a death certificate. I have had the pleasure of teaching the students how to perform a diagnostic hospital autopsy, one of the oldest procedures in medicine. The students come close to the autopsy techniques and participate in sectioning the organs. This is a good method of teaching with close contact with the students. In addition, I have also taught classes about skeletal muscle diseases, which are a part of the B12 course as well and prepared exam questions for the course.

Course in klinisk farmakologi og terapi A in the master program in pharmacy at University of Southern Denmark, 2015-2018

One of the newer master's degrees at University of Southern Denmark is pharmacy. A lecture on neurodegenerative diseases is part of the curriculum in the course klinisk farmakologi og terapi A and I have the pleasure of giving that lecture. The emphasis of that program is pharmacy, but the students are given an introduction to the pathophysiology and the pathological changes in the brain in the neurodegenerative diseases. Therapeutically this group of diseases presents a huge challenge, as they are very difficult to treat. Therefore it is important for the students to know about these challenges, and it might spark their interest for research in this field.

Course in klinisk patologi in the master program in medicine at Aalborg University, 2013-2014

The medical school at Aalborg University is new and while I was a resident physician at the Institute of Pathology at Aalborg University Hospital, I was involved in establishing an entirely new course in pathology with lectures, classes, specimen demonstrations, and exams.

I prepared and gave the following lectures:

- Infectious diseases
- The immune system, lymphoid and hematopoietic tissues
- Diseases in the nervous system and muscle

For the exam in pathology we used PathXL a web based digital platform where microscope images and the corresponding exam questions are integrated and the answers are given digitally.

Course in neuropathology techniques in the master program in molecular medicine at Aarhus University, 2012-now

A course in neuropathology techniques is part of the master program in molecular medicine at Aarhus University. Together with professor Jens Nyengaard from Aarhus University I have given lectures and demonstrated central nervous system specimens as part of this course since 2012.

The part of the course I am involved with is a four-hour session where Jens Nyengaard presents an overview of how an autopsy is performed and how the central nervous system is removed post mortem. Then senior pathologist Benedicte Ulhøi demonstrates a neuropathological autopsy. I close the session with a two-hour lecture and review of a book chapter about neurodegenerative diseases.

PhD-course in flow cytometry at the Danish Stem Cell Research Doctoral School (DASC-DOC) at University of Southern Denmark, 2006

Danish Stem Cell Research Doctoral School was a national Danish PhD program for stem cell research. A PhD-course in flow cytometry was part of this program and I had the opportunity to teach a lab class in this technique. Flow cytometry is a technique I have used extensively in my research and I was of course happy to have the opportunity to teach this technique. This was a course at postgraduate level, which was an additional and appreciated academic challenge for me.

PhD course in Laboratory animal science at Aarhus University, 2005

The PhD program at Aarhus University encompasses a PhD course in laboratory animal science. I have made extensive use of laboratory mice in my research, and in this course I had the opportunity to give a lecture on some of the experimental microsurgical techniques I have used in my work with laboratory animals, mainly stereotactic surgical lesions of the perforant pathway in the brain.

PhD course in microsurgical techniques at University of Southern Denmark, 2005

The PhD program at University of Southern Denmark also includes a PhD course in laboratory animal science. In this course I had the opportunity to teach how to actually perform the stereotactic perforant pathway lesion in laboratory mice.

Course in central nervous system anatomy and function in the master program in language acquisition at University of

Southern Denmark, 2005

University of Southern Denmark offers a master's degree in language acquisition and here, together with my PhD-supervisor professor Bente Finsen, I held a four-hour introductory session of lectures on central nervous system anatomy and function.

Course in central nervous system anatomy in the bachelor program in speech therapy at University of Southern Denmark, 2017-now

When the University of Southern Denmark began offering a bachelor program in speech therapy, my 2003-2005 PhD-supervisor professor Bente Finsen was presented with the task of building an all-new course in central nervous system anatomy for this bachelor program. As her PhD student I got the assignment together with her to create and give a series of systematic lectures about central nervous system anatomy. This was a major challenge but also an interesting opportunity to generate new educational material and to train didactic techniques necessary for giving plenary lectures. This series of lectures is combined with a number of practical specimen demonstrations of the human central nervous system. After I returned to University of Southern Denmark as a clinical associate professor, I began teaching this course again and continue to do so.

Demonstration of gross anatomy specimens in the bachelor program in public health at University of Southern Denmark, 2002

The University of Southern Denmark offers a bachelor program in public health. For this program I had the opportunity to introduce the students to gross anatomy. In a three-hour session I presented a selection of gross anatomy specimens for the students.

Tutorials in splanchnology and head and neck gross anatomy in the master program in medicine at University of Southern Denmark, 2000-2002

Ever since I began medical school, human anatomy has been a major interest of mine and I have specialized in the field of anatomic pathology. Through a major part of my time as a medical student I have taught younger students anatomy as an instructor. This has always been a great pleasure for me and it gave me the opportunity to continue studying anatomy after I finished the anatomy courses myself and engage in learning even more details. The tutorials were designed so that we as instructors helped the students work with exam style questions and in relation to this we presented anatomical specimens.

Course in dissection of the human locomotor system in the master program in medicine at University of Southern Denmark, 1997-1999

Teaching dissection of the human locomotor system was my entry into university teaching. I finished the course in human locomotor system gross anatomy in the summer of 1996. The following year I began as an instructor on the dissection course and continued as an instructor on several of these courses. It was a great pleasure for me to continue working with human anatomy even after I finished the course myself.

Other teaching assignments

In addition to the above-mentioned formalized teaching assignments I have had a number of more informal opportunities to teach including as a pathology resident at Aarhus University Hospital, Aalborg University Hospital, and Odense University Hospital, where I have had the pleasure of teaching younger colleagues as well as students of other professions about autopsy.

I have also co-supervised a bachelor student in biomedicine and a medical student in connection with their research projects and I have participated in the Danish Medical Association's mentor program for young physicians in their internship.

In my current job as an attending physician in pathology I have daily supervision of residents in various chores such as gross specimen preparation, microscopic examination and diagnostics, and writing pathology reports amounting to hundreds of hours of clinical teaching and supervision.

As a clinical associate professor I have supervised three medical students in writing their masters thesis in medicine. In 2021 I was awarded the Association of Pathology Resident's education prize.

#### **4. Metoder, Materialer og Redskaber**

As a clinical teacher in pathology at Aalborg University I prepared all new lectures and exam questions as mentioned above. The exam was digital using PathXL a web based digital platform where microscope images and the corresponding exam questions were integrated and the answers were given digitally.

I have participated in planning the course in neuropathology techniques in the master program in molecular medicine at Aarhus University and I have contributed in generating educational material for the course.

Many of the teaching assignments I am involved with include preparation of exams including numerous multiple choice, short answer, essay style questions.

For the numerous classes I have taught I have prepared an extensive range of teaching material. In several of these courses for which I have prepared teaching material for, e-learn (Blackboard and itslearning) has been the routine way of communicating between the students and me as lecturer. E-learn is an efficient digital platform for passing on information from me to the students before and after a lecture.

## **5. Uddannelsesudvikling og Universitetspædagogisk Forsknig**

In addition to the teaching assignments listed above I have had numerous other tasks of communication in relation to my scientific and clinical work including multidisciplinary clinical conferences, scientific lectures and poster presentations at national and international scientific symposia and congresses. My daily clinical work involves writing numerous pathology reports for my colleagues in the clinical specialties.

Education at university level differs significantly from other kinds of teaching, as it is and must be based on research. This places high demands on those who teach at universities for integrating methods and principles used in research in the way knowledge is communicated to the students. Continuously, ever since I began my own research, I have approached teaching as a scientist who teach more than a teacher who does science. With this approach I make certain that I communicate knowledge to the students in a research-based fashion. The didactical methods are of course as in all other forms of teaching essential. Knowledge must be presented in a straight forward and comprehensible but also systematic and exhaustive manner such that the highest academic level is maintained at all times.

The principles of teaching varies among the Danish institutions of higher education, which has obvious advantages as it provides different options to students as well as teachers for choosing their preferred academic style. The curriculum for medicine at the University of Southern Denmark encompasses different styles of teaching, some classes are taught as lectures in large auditoriums, others have the form of tutorials, and yet again some are presented as online classes or podcasts.

When teaching at institutions of higher learning it is important to ensure that what is taught is based on research and science and that it is presented in a comprehensible manner that facilitates learning and motivates the students to further reading. This is what I strive to achieve when I teach. I prefer when academic teaching is a combination of lectures, tutorials, online media, and self-study.

## **6. Refleksion over egen pædagogisk praksis og fremtidig udvikling**

Neuroscience is my own field of research and I teach lectures in a course about central nervous system diseases. In Healey's four quadrants I am aiming towards placing much of my teaching in the quadrant 'Emphasis on research content' where I attempt using scientific knowledge to emphasize the subject I teach and for illustrating how this knowledge is obtained.

I practice research based teaching by being a scientist who teach more than a teacher who does science. In Bering Keidings didactical triangle my teaching tends to lean towards the side with 'Research based teaching as presentation of research', which comprises the risk of losing the students and undermining their learning. My considerations about why it makes sense to practice research based teaching in this context include that active learning is in many situations the preferable way of learning, however, this is very difficult as the students seem to prefer acting as an audience rather than actively participating. Also, many of the classes I teach have a high number of students, which makes exercises such as student writing and discussion of papers and essays difficult. The super complex world is a difficult place to be and helping the students engage in and interact with the super complex world is challenging. What I try to do in my teaching is to give the students a framework of basic academic knowledge and scientific skills that they can apply in any situation no matter how much the framework around them is changing or contested.