

Teaching Portfolio

Coen P. H. Elemans

Biologisk Institut

Lyd og Adfærd

E-mail: coen@biology.sdu.dk

Telefon: +4565504453



Educational training

- 2013 Successful completion of a 1-year long teaching qualification program (Adjunktpædagogikum) at the University of Southern Denmark, aimed at further development of teaching skills and personal teaching philosophy
- 2004 Certificate for 'MSc thesis Supervision' (Wageningen, University, The Netherlands)

Teaching Experience

Examination 2018-now Censor in censorcorps Biology, Denmark. External examiner for 6 MSc theses.

Mentorship Supervisor of 4 postdocs, 5 PhD theses plus co-supervisor on 2 PhD theses, 14 MSc theses, >20 student projects/BSc theses.

Undergraduate level 2014-now Course responsible "Animal Behaviour I" (5 ECTS, Cat. nr. BB546). I teach the basics of Behavioral biology, including a mix of lectures, excursions, written assignments that systematically build up abilities to quantify animal/human behavior. 2009-2013 "Biology – from molecule to ecosystem" (Cat. nr. FF503 (2011-2013) & BB501 (2009-2011)). I taught basic muscle physiology, sensory physiology and behavior to <300 students using lectures, E-tests and problem-based workgroups. 2009-now "Zoophysiology" (10 ECTS, Cat. nr. BB511). I teach basic muscle physiology and neurophysiology to 30-50 biology students in two laboratory exercises using the live frog sciatic nerve and gastrocnemius muscle. I redesigned the exercises exploiting the newly purchased teaching equipment for spring 2019. 2000 Teaching Assistantships 'Human epidemiology and nutrition', Wageningen University 1998 Teaching Assistantships 'Botany', Wageningen University 1997-2000 Teaching Assistantships 'General Zoology I & II', Wageningen University 1997-2001 Teaching Assistantships 'Animal Taxonomy, invertebrates', Wageningen University

Graduate level – MSc courses 2019 Course responsible "Behavioral Neuroscience" (10 ECTS). We are preparing a new state-of-the-art course in Behavioral Neuroscience taught by members of the Sound Behavior and Communication group targeting Biology and Biorobotics (TEK) students. This course will replace "Behavior II" (BB835). 2015-Course responsible "Sound and Hearing" (5 ECTS, Cat. nr. BB823). I overhauled this course completely into a practical course on sound recording methodology, interspersed with field excursions. This course regularly attracts students from AU/KU and even abroad. 2013-2014 "Sound and Hearing" (5 ECTS, Cat. nr. BB823). I co-instructed the course with JM Ratcliffe. 2012-2013 "Animal Behaviour" (10 ECTS, Cat. nr. BB809). I taught sensory physiology using a locust wing stretch receptor exercise to 50 psychology students 2012 "Zoophysiology" (10 ECTS, Cat. nr. BB809). I replaced a colleague on sick leave and taught neurophysiology and muscle physiology to 30 biology students in interactive lectures and discussion groups. 2011 "Animal Behaviour" (10 ECTS, Cat. nr. BB809). Guest lecturer. 2010 Guest teacher in MSc program 'Neurobiology and Behaviour', Free University, Berlin, Germany

Graduate level – PhD courses 2015-2019 Course director biennial; summer school "Acoustic Communication" (10 ECTS, Cat. nr. BB203). Highly competitive and successful intense two-week PhD summer course for 24 international students with 21 contributing teachers. When taking responsibility for this course in 2015 I created platform amongst the teachers to make a major overhaul of the course curriculum. I included technical lectures, 12 sound measurement practicals that range from basic to advanced (problem-based), and inspiring biology lectures from famous senior scientists. Next to managing the course I teach several lecture and labs such as "The physics of Sound production", 'Signal analysis' and 'Software/Hardware integration'. 2011-13 "Acoustic Communication" (10 ECTS, Cat. nr. BB203). I contributed several topics such as "Sound production mechanisms", and 'Digital signal analysis using Matlab' (lab exercises).

Methods and tools

Teaching methods

Lectures: I enjoy giving lectures and have done so in classes ranging from 6 up to 350 students. This is still a very practical solution to especially the first two years of a BSc, where the effectiveness of Problem Based Learning has been proven to be significantly lower (many publications by John Sweller et al). Activation of the students is challenging, and therefore I use some form of participation at least every 20 minutes. For example, I use various polling methods or have the students form so-called "think-pair-shares" to briefly discuss a concept. I mix the use of media (blackboard, movies, models), and do not give a two-hour straight powerpoint talk.

Exercises: In biology there is no substitute for laboratory or field exercises to get acquainted with the full complexity of living organisms and the world they live in. I have instructed several laboratory exercises where the theory presented in lectures is translated and illustrated by practical work. These were cook-book type lab exercises, where the students

follow a recipe. This is good for initial courses working with living (parts of) animals, but for the more advanced courses I would like to experiment with implementing a problem-based approach.

Excursions: These are a personal favorite part of teaching biology and essential to many courses, such as botany, taxonomy and also behavior. In addition, they can tremendously enforce the social cohesion within a cohort of students and will be remembered for life.

Model for personal student supervision

I treat all individual student projects, whether it be BSc, MSc or PhD students, as proper research projects, with consequential implications for their management in resources (time, equipment) and content. I emphasize the need for planning to the student. For the experimental sciences, planning is not a trivial matter and even with quite some experience it can be very difficult to balance realism and ambition. Therefore I help the students to make realistic plans from the start, including time-lines, define milestones, success criteria, risk assessment and backup plans. These plans provide a guideline throughout the project's progression. I make my students integral part of my overarching research program, which ensures intensive supervision.

The student and I also define clear supervision expectation for both sides. For the student this aids to ensure I grant the students sufficient time in their right to supervision. For me, this is to make clear to the student that my supervision also is a resource they need to use wisely.

While I prefer to stimulate PhD students to take the lead on and steer their own projects, even though they are most often funded with specific goals in mind. For inquiring MSc and BSc students I typically suggest several projects that fit in the lab's overall program. For BSc projects at SDU the devoted time in the lab has become so short that non-cook book experimental work is rather challenging.

Career planning

One of the first questions I asked interested student is what they want to do after a project or education to make them focus on what skills they deem relevant to learn under my supervision. I also made career planning an integral part of the national-wide three-day long visit of high school students. For my MSc, PhD students and postdocs I pay special attention to their long-term career planning. Years before the "Carreer MUS" I already structurally made time to discuss what their personal goals and aspirations are, how to balance work and personal life, and also inform them of grant/job opportunities I am aware of.

Therefore I keep in touch with my former students. One of the criteria for success as a scientist I personally have is the number of my students that become independent established researchers.

Teaching Assessment

In each course I find it essential to have a good alignment between the material covered and the exam, whatever method chosen. At SDU I have used several forms of assessment:

E-tests (Used in FF503/BB501/BB809/BB546): Tests consisting of predominantly multiple-choice questions covering subject given a week after the lectures and group discussions. E-tests are easy to setup and use and work very well to quickly assess skills or knowledge at an intermediate stage. This allows me to 1) evaluate whether or which specific topic has not been fully understood by a good deal of the students and 2) act on this while the class is still running.

Written exam (FF503/BB501): Classic and essential form of assessment. For physiology exams I test their reading skills by posing questions that consist of stories, tying more subjects together.

Written report (FF503 / BB511 / BB823, BSc, MSc and PhD projects). This form I have used at all levels from undergraduate to PhD. Multiple skills of the student are tested at once.

Oral exam. I have only used the oral exam for individual MSc and PhD projects, and not yet for courses. I would like to implement topic presentations with discussion as exam form.