

Course analysis
Neuroscience DD2401/3401

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No. of students registered: ~80

The course provides a broad introduction to neuroscience. The aim of the course is to familiarize students with general concepts, key experiments, and computational/theoretical interpretation of experimental data. The course is offered to all MSc students at KTH. Some PhD students also join the course. The key difference between MSc and PhD students is that the latter have to write a long essay on an advanced topic not covered in the course lectures.

Key Challenge

Challenge	Our approach
<p><i>Selection of topics:</i> Neuroscience is a broad topic, and a typical KTH student has no background in biology. So, students find it daunting to learn a whole new vocabulary. But we do not intend to make our course an exercise in memory and recall. Our main challenge is to select topics which involve a fair bit of conceptual and analytical ideas.</p>	<p>Depending on the response of the students in the previous years we have revised the contents and removed/added new topics.</p> <p>Moreover, by now in most cases each lecture is combined with some theoretical/computational idea or approach.</p>
<p><i>Course material:</i> Given the breadth of topics and that we modify course contents regularly, it is rather difficult to find a single course book. I personally think that this is fine for a MSc level course, but I understand that students may struggle to find contents in books.</p>	<p>First, we ensure that all exams. questions are based on lecture slides. This indeed restricts us in setting up the exam.</p> <p>Second, we provide specific chapters from selected books.</p> <p>Third, we provide lecture notes for some of the lectures. And tutorials help a lot in this regard.</p>

<p><i>Student engagement in the course:</i> I think students come to the course assuming that brain science will inspire machine learning. And they are quickly disillusioned. Therefore usually ~20% of students never take the exam. Among those who stay, only a handful interact with us during lectures.</p>	<p>We have introduced tutorial notebooks. Students can now get to explore a few topics in hands-on tutorial which involve simulation of neurons and networks. These notebooks can be run online without any specific installation locally</p> <p>We have introduced a neuroscience hangout but unfortunately not many students join that.</p> <p>In the year 2023 we will return to in-person mode, hopefully things will be better then.</p>
<p><i>Examination:</i> We have been doing an open book/notes examination since 2020. Students however must write their answers in their own handwriting. Moreover, due to the open book nature of the exam, some of the questions are very subjective so it is possible that sometimes grading is not uniform. In addition, grading takes a long time.</p>	<p>After we have introduced the open book exam. students have received better grades and in fact in most cases their answers are very insightful. So, we do not want to change the format of the exam.</p> <p>At this point we do not really know what can be done for this. One positive thing is that now after having done the exam 6 times we have a growing database of questions and now we can make them more objective</p>

I have not added the course feedback because I think that the feedback is useless. First, only a handful of students respond, and they are usually not the representative samples. I once received rather harsh feedback from a student (as a comment to LEQ) and I discussed it with my colleagues, and they simply advised me to ignore that. Second, the questions that we have in the standard LEQ are pretty much meaningless. I would like to revise that but to hope that same questionnaire can apply to every course is a fallacy. I prefer to take feedback from students who are regular in the course, and they do provide useful feedback which reflects in our teaching on lecture-by-lecture basis.