BKO portfolio

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A Onderwijs-CV

Since September 2011, I am *Universitair Docent* in the Education Institute for Informatica and Information Sciences, with a 0.4 teaching appointment.

Onderwijsuitvoering

Hoorcolleges verzorgen

2011/2012 **Complexiteit** (Radboud Universiteit Nijmegen)
responsible teacher, course organized with Henk Barendregt

This is a 9 week course, 3EC, given to second year students in Informatica and HBO *doorstromers* at the RU. Some Mathematics students also attended the course. Every week, two hour lecture plus two hour tutorial sessions. Evaluation done through two midterm tests (which could only count positively) and a two hour exam. We had circa 70 students, out of which 52 took the exam.
I delivered 7 lectures, prepared the exercises for the exercise sessions (and corresponding solutions), the tests and exam (as well as a try-out exam). I was present every week at the tutorial sessions, where, together with Henk and our two teaching assistants we tried as much as possible to give individual attention to students. In particular, we separated students who were trying to pass the course for the 3rd time and gave them extra explanation on basic material.
The website for the course was: http://alexandrasilva.org/teaching/complexity2012.

2007/2008 en 2008/2009 **Program Correctness** (Leiden Universiteit)
responsible teacher, shared with Dr. Marcello Bonsangue

This is a 16 week, 6 EC, course given to second year students in Informatica at Leiden University. Some Mathematics students also attended the course. Every week, two hour lecture plus two hour tutorial sessions. Evaluation done through one practical assignment (which could only count positively) and a two hour exam. We had circa 30 students, out of which 20 took the exam.

I delivered 9 lectures and prepared the exercises for the tutorial sessions, which were given by a PhD student. I also prepared part of the exam (and respective solutions).

Werkgroepen begeleiden

2011/2012 **Complexiteit** (Radboud Universiteit Nijmegen)
2011/2012 **Wiskunde 1** (Radboud Universiteit Nijmegen)
2005/2006 **Computer Architecture** (University of Minho, Portugal)
2005/2006 **Algorithms and Complexity** (University of Minho, Portugal)
2005/2006 **Object-oriented Programming** (University of Minho, Portugal)
2004/2005 **Computer Architecture** (University of Minho, Portugal)
2004/2005 **Imperative Programming** (University of Minho, Portugal)

Individuele begeleiden van studenten

2011/2012: Tessa Matser, Bachelorscriptie Wiskunde, Radboud Honours Program (together with H. Geuvers).
2011/2012: Peter Maandag, Bachelorscriptie Informatica (together with H. Barendregt).
2009: Eugen Goriac and Georgiana Caltais, Master Students.
2008 - 2011: Young-Joo Moon, PhD student.

Onderwijsontwikkeling

Doelgericht ontwikkelen

- Master course **Coalgebra: a unifying approach to system behaviour**, Radboud Universiteit Nijmegen, to be part of the Master

on Foundations Track. Developed content planning, *leerdoelen*, evaluation scheme, studiegids text. To be given together with Jan Rutten and Helle Hansen.

- Bachelor course **Complexiteit**, Radboud Universiteit Nijmegen, redesigned course content and organization to overcome problems raised by students in previous years.

Onderwijs organisatie

Evalueren en regulier bijstellen van cursussen

I discuss regularly with my colleagues and student assistants on how the course is developing. The two courses I taught last semester were a prime example of this. In the Complexity course, the negative results of previous year's forced us to reflect on what could be improved. This lead to several discussions between Henk Barendregt and myself, as well as with other teachers.

The Wiskunde 1 course, with more than 180 students, required a large team of 6 people (lead by Bart Jacobs). Due to negative student evaluations from last year, we also thoroughly discussed in the beginning how to improve the results and what we offer the students.

Constructieve samenwerking en inhoudelijke afstemming met collega's

As an example, for Wiskunde 1, we have decided to divide the students in the tutorial sessions according to their mathematical background. In this way each teacher could adapt their explanations in a tutorial session to the level of his own students. Along the course, and with the help of the weekly homeworks, we constantly monitored the progress of the students and tried to give them as much individual supervision as possible. This resulted in a very positive impression from the students, reflected in the good evaluation they gave the course.

B Zelfevaluatie

Competentie 1: Vertaling vakinhoud naar onderwijs

Sterke punten

I have a broad and contemporary knowledge of Computer Science and this gives me material to motivate the students by linking what I teach them, which is of a theoretical nature, to the real world. In degrees like Informatica, where mathematics and theory play a crucial role in the education of the students, it is important to keep them motivated to learn, since most of the times the typical Computer Science student is much more driven by practical assignments.

Verbeterpunten

I have sometimes tendency to adjust the level of my courses in order to not loose the weakest students. This has as consequence that some students find it too slow or they think the material handled could be extended or harder.

Competentie 2: Onderwijsuitvoering

Sterke punten

I am very enthusiastic in my lectures, I try to engage the students in the subject and get them excited about learning new things. I am always available to talk to students and to provide them with new material or to use their suggestions to improve the course. The students have explicitly mentioned this in the student evaluation forms.

Verbeterpunten

I tend to get nervous if I have not prepared something for the lecture which is then asked by the students. This means I come across sometimes as insecure to the students. Moreover, my perception of my own courses is sometimes more negative that the reality. Both things are to avoid in the future.

Competentie 3: Onderwijsontwikkeling

Sterke punten

I always develop exercises for the *werkcolleges* that reflect the material I treated in the lectures. I give solutions for the exercises so that the students

learn how they are expected to solve certain types of exercises. I make available try-out exams, with an accompanying toetsmatrix, to help the students prepare for the exam.

Verbeterpunten

I repeat a lot of material in between lectures which means I could handle more material in a course than what I usually do.

Competentie 4: Onderwijsorganisatie

Sterke punten

I am efficient in the organization of my courses. I put the slides online immediately after the lecture, and make sure the exercises are available for the students a couple of days before the tutorial session. I correct the assignments and exams in a timely fashion and make sure the results are available to the students as soon as possible. I am always open to organize extra meetings with my students and extra exercises to help them learn the material. This has been explicitly mentioned in the evaluation sheet of the students.

Verbeterpunten

There are other courses in the curriculum which have contact points with the course I was giving this year (Complexiteit). We were not so well synchronized on what each course was dealing with and therefore the students ended up hearing material repeated in both courses. Being more attentive to contact points and synchronizing better with other teachers is certainly something to improve.

Competentie 5: Ontwikkeling docentschap

Sterke punten

I am critical about my own lectures and I try to learn from mistakes. I reflect on critics from colleagues and students, to whom I actively ask for feedback. I read the student evaluations with care and take into account their remarks to prepare for other courses.

Verbeterpunten

I have a strong preference to teach small groups. I am a huge advocate of individual supervision and therefore tend to be a better teacher when I am given the opportunity to teach a group with less than 30 students. More experience with larger groups and learning how to adapt my teaching style in order to not compromise quality is something of interest and value for the future.

Concluderend: mijn ontwikkelpunten voor mijn docentschap naar de toekomst toe inclusief concrete toetsbare actiepunten

From the above analysis of the main competences there are two things that I need to improve on:

- Students can sense your insecurities and this leads to them trusting me less as a teacher. In the future, I will work more on improving my self-confidence and improvisation skills.
- I will adjust the amount of material handled in the course, so that I give more opportunities to better students to feel more challenged.

C Reflectieverslag

Inleiding op de casus

The first course I taught in Nijmegen was handed it out to me as a difficult course. On the one hand, being a rather theoretical course, the students are not very motivated and tend to drop out very easily. On the other hand, for many different reasons, the amount of students which failed the course in the last years was considerably large. This meant that the overall group was larger than usual (circa 75 students) and a large part was doing the course for the 3rd time.

Ervaren van een praktijksituatie

Onderzoeken

I gathered some of the students after the first lecture and after the first tutorial session and tried to understand what was it that in the previous years had made them drop out or fail.

There were two main complaints. The first was that in previous years students had difficulty in understanding which part of the lectures were really to be learned and which parts were more general motivation material. Secondly, the students thought that the gap between the lectures, the tutorials and the exam was too big. In particular, they thought that the knowledge needed to solve the tutorial exercises was not handled in the lectures.

Betekenis geven

From the feedback I got from different students, I gathered that the students needed more clear goals for the course. I discussed the students' complaints and remarks with Henk, who has taught the course in the past two years and with whom I organized the current edition, and also with other colleagues (Bart Jacobs and Hans Zantema) and tried to come up with an organization of the course that would facilitate their learning process and that would make them feel they knew what was expected from them. I decided to have one of the tutorial sessions mainly for students that have more difficulties and in that session explained the exercises at a more detailed level, also including explanations of basic mathematical concepts which some of the students lacked. Moreover, by introducing two midterm tests, the students became more aware of their difficulties (which they could then overcome for the exam) and this gave them more motivation to study.

Verbeterd uitvoeren van de volgende praktijksituatie

The results of the course evaluation included many comments from students attesting to the positive difference between this year's edition and previous editions of the course. From the 72 students enrolled for the exam, 60 took it and 56 passed it.

D Bewijsstukken

Leerdoelen

Leerdoelen of the master course on *Coalgebra: a unifying approach to system behaviour*:

http://www.alexandrasilva.org/files/BKO/coalg-stugid.pdf.

Observatie door een collega

Henk Barendregt was present in most of my Complexity lectures and provided feedback along the way which I took into account when giving my lectures. The observation form can be found at:

http://www.alexandrasilva.org/files/BKO/ObservatieFormulierHenk.pdf.

Slides

The slides of my Complexity course can be found on the course's webpage:

http://alexandrasilva.org/teaching/complexity2012/.

For instance, the slides of the third lecture:

http://alexandrasilva.org/files/teaching/complexity2012/slides3.pdf.

Opdrachten met uitwerking

Exercises and accompanying solutions of my Complexity course can be found on the course's webpage:

http://alexandrasilva.org/teaching/complexity2012/.

For instance, the exercises of the third week:

http://alexandrasilva.org/files/teaching/complexity2012/ex3.pdf.

and the solutions:

http://alexandrasilva.org/files/teaching/complexity2012/ans3.pdf.

Tentamen/Toets met toetsmatrix en uitwerking

The first test and solutions of the Complexity course:

http://www.alexandrasilva.org/files/BKO/test1-with-solutions.pdf.

The try-out exam and toetsmatrix:

http://alexandrasilva.org/files/teaching/complexity2012/proeftentamen.pdf.

http://alexandrasilva.org/files/teaching/complexity2012/toetsmatrix.pdf.

Studentevaluaties

Students evaluations from the course *Complexiteit* in the year 2011/2012:

http://www.alexandrasilva.org/files/BKO/Complexiteit-studenteval.pdf.

Students evaluations from the course *Wiskunde 1* in the year 2011/2012:

http://www.alexandrasilva.org/files/BKO/Wiskunde1-studenteval.pdf.

Students evaluations from the course *Program Correctness* in the year 2008/2009:

http://www.alexandrasilva.org/files/BKO/ProgramCorrect-studenteval.pdf.

Docentevaluatie

Docentevaluatie, from the course *Complexiteit* in the year 2011/2012 can be found at:

http://www.alexandrasilva.org/files/BKO/EvaluatieComplexiteit.pdf.

QPT score

Score:	105 (out of 120)
CEFR level:	**C2** (highest level)

Certificate can be found at:

http://www.alexandrasilva.org/files/BKO/qpt.jpg.