

Statement of Teaching Interests

Antonina Kolokolova

I have been teaching computer science courses since the summer 2003. Since then, I have taught algorithms (both second-year in Java and third-year theoretical courses), discrete mathematics (first year), computability and complexity (third year and graduate) and logic in computer science (second year). Although I am best qualified to teach theoretical courses, I could teach a broad range of courses from computer science and mathematics curriculum.

I participated in development of several sets of lecture notes. In particular, I was involved in scribing and developing notes for the third year computability and complexity course in Toronto (based on lectures by Stephen Cook), notes for finite model theory course by Leonid Libkin (which served, in part, as the basis for his book “Introduction to finite model theory”). The lecture notes for IAS Summer School on Complexity, of which I have done an 80-page manuscript preparation of lectures by Stephen Rudich and Avi Wigderson, have been published in the IAS/Park City Mathematics Series.

In Fall 2008 I taught a second-year course on logic in computer science at Memorial University of Newfoundland. This was a first course out of two that constitute the discrete mathematics part of curriculum, and is supposed to have only the logic, with no combinatorics, number theory, graph theory, etc. Also, it is intended as a logic course tailored to second-year computer science students. Since I could not find a suitable textbook for such a course, I have developed a full set of notes covering the range of topics from propositional logic with applications to Boolean circuits and automated theorem proving to predicate logic with applications to databases, to Gödel incompleteness theorem and undecidability. These notes are available on my home page. I have heard from a European scientist that they have found some of my notes useful in their teaching.

Part of my teaching philosophy is getting undergraduate students interested in research from second and third year of their studies. I have been able to attract one undergraduate student last year, who is working on universal traversal sequences with me, and may do a honours thesis on this topic. I am also supervising a Masters student.

I am also participating in mentoring programs. Last summer I was involved a Women in Computability mentoring program and was invited to give a talk at the corresponding workshop. This year I am applying for a CDMP Mentorship program, and hope to work with some NSERC USRA students next year.