Ramsey theory, fall 2016

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Ramsey theory Moodle page

Teacher: Åsa Hirvonen

Scope: 10 cr

Type: Advanced studies

Teaching: Four hours of lectures and two hours of exercises per week.

Topics: Ramsey theory considers unavoidable regularities in large structures: If all k-subsets of the integers are finitely coloured, then there is an infinite homogeneous set (Ramsey); if the positive integers are finitely coloured then one colour class contains arithmetic progressions of arbitrary length (van der Waerden); an n-dimensional cube (for n large enough) is r-coloured then there exists a monochromatic 'line' (Hales-Jewett theorem), etc. We will look at basic proof techniques of both finite and infinite Ramsey theory.

This is not really a logic course, although there are some applications to logic, but Ramsey theory is about phenomena that occur in areas as varied as combinatorics, algebra, analysis, geometry, set theory and logic.

Prerequisites: This course does not really require any logic background, but some 'mathematical routine' is assumed (this is an advanced course, so some intermediate courses such as Algebra I and Topology I are assumed).

News

- The course has a Moodle page that will be used for exercises, news, etc. It is now available (although not in final shape).
- Note that exercises start already the first week (i.e. Friday 9.9.)
- Due to the University's opening ceremony there will be no lecture on Monday 5.9.

Teaching schedule

Weeks 36-42 and 44-50, Monday 14-16 and Tuesday 10-12 in room C123, exercises Friday 10-12 in room C122.

Exams

Exam lasts 2,5 hours.

You can use (lecturer will fill in) in the exam.

Course material

We will mainly follow the book Graham, Rothschild, Spencer, Ramsey Theory (second edition).

Registration

Did you forget to register? What to do?

Exercises

Assignments

will be published on the Moodle page of the course

Exercise classes

Group	Day	Time	Room	Instructor
1.	Friday	10-12	C122	Åsa Hirvonen

Course feedback

Course feedback can be given at any point during the course. Click here.