ERGODIC THEORY (FALL 2018)

Instructor: Omri Sarig (lectures), Snir Ben-Ovadia (tutorials)

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Office: Ziskind, room 261

Class times:
Sunday 15:15-17:00, Ziskind, room 155 (lecture)
Tuesday 11:15-12:00., Goldsmith, room 108 (tutorial)

Assessment: Final grade: 80 percent final assignment + 20 percent homework. To be entitled to get a grade in this course you will need to submit all homework assignments except at most two.

Text: Course notes will be made available online

Course web-page: http://www.weizmann.ac.il/math/sarigo/ergodic-theory-course

Part 1: Measure preserving transformations

Week 1 (Nov 4). Introduction and review of measure theory

Week 2 (Nov 11). Measure preserving transformations

Week 3 (Nov 18). Mixing

Part 2: Ergodicity

Week 4 (Nov 25). Pointwise Ergodic Theorem

Week 5 (Dec 2). No lecture (Hannukka). Tutorial meets as usual.

Week 6 (Dec 16). Subadditive ergodic theorem

Week 7 (Dec 23). Multiplicative Ergodic Theorem

Part 3: Weak mixing

Week 8 (Dec 30). The spectral approach to ergodic theory

Week 9 (Jan 6). Weak mixing

Part 4: Entropy

Week 10 (Jan 13). Introduction to entropy in ergodic theory

Week 11 (Jan 20). The metric entropy

Week 12 (Jan 27). Consequences of positive entropy

Week 13 (Feb 3). Entropy and Lyapunov exponents