Some arguments in equidistribution

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Hours 1-3 Definition of measure preserving and ergodic. Equivalent definitions of ergodic. Statement of Birkhoff ergodic theorem and proof of its consequence for continuous compactly supported functions. The Converse of Birkhoff ergodic theorem is easy. Proof of Birkhoff ergodic theorem and ergodicity of irrational circle rotations.

Hours 4-5: Baby case of an argument of Ratner/Masur: ergodicity of flow in a particular direction on the 2-torus. Then prove ergodicity of irrational flows on the 2 torus.

Hours 6: Baby case of an argument of Codene: ergodicity of flow in a particular direction on the 2-torus.

Hours 7-8: Ergodicity and mixing of hyperbolic total automorphisms via the Hopf argument. Baby case of an argument of Dani: ergodicity of flow in a particular direction on the 2-torus.