Reading instructions: Oral Exam Chaotic Dynamical Systems

References are to to the course book by Devaney

1. The quadratic family, symbolic dynamics, topological,conjugacy, structural stability 1.5-1.9, pp. 31-59
2. Sarkovskii's theorem (proof only in the case of three periods), 1.10, pp 60-68
3. The Scharzian derivative, Theorem 11.4 (at least formulation). Application to quadratic maps. 1.11, pp. 69-79
4. Bifurcation theory, saddle nod and period doubling bifurcations (no detailed proofs), 1.12, 80-92.
5. The kneading theory. 1.18. pp. 139-146. Extract from the book by Collet-Eckmann on the intermediate theorem for C^1-families.http://www.math.kth.se/math/GRU/2014.2015/SF2720/kneading_int_value.pdf
6. Circle maps. 1.14, pp. 102-113. Extract from Irwins book: http://www.math.kth.se/math/GRU/2014.2015/SF2720/circle_maps.pdf
7. The dynamics of linear maps: two and three dimensions. 2.2, pp. 173-180
8. The horseshoe map. 2.3, pp. 181-188
9. Hyperbolic toral automorphism. 2.4, pp. 190-200.
10. The stable and unstable manifold theorem. 2.6, pp. 214-231.
11. Homoclinic points, Hénon maps and the relation to Smale's horseshoe
12. Invariant measures http://www.math.kth.se/math/GRU/2014.2015/SF2720/invariant-measures.pdf
13. Differential equations. Poincaré-Bendixon theorem. Umlaufssats. Material on Sheldon Newhouse's webpage. http://www.mth.msu.edu/~sen/Math_848/index.html