Dr. Jakobson  
Math 3317, phone 405-5152, e-mail mvy@math.umd.edu.  
Lectures: Tu, Th 9:30 - 10:45, 1308.  
Office hours: Tu, Th 10:45 - 12 and by appointment.


Prerequisite: MATH432, and MATH630 or equivalent.

Dynamical Systems is a major mathematical discipline closely intertwined with all main areas of mathematics. The modern theory of Dynamical Systems originated at the end of the 19th century with attempts to study the stability of the solar system. It developed into a rich and powerful field with applications to physics, biology, meteorology, economics and other areas. The Maryland dynamical systems group is among the very best in dynamics worldwide. In particular, James Yorke is a recipient of Japan Prize and Jurgen Moser Prize. The First two Brin prizes in Dynamics were given to the members of the Maryland dynamics group. The last two Congresses on Mathematical Physics had plenary speakers from our group. Members of the group are active in several areas of dynamics including smooth ergodic theory, symbolic dynamics, chaotic dynamics, celestial mechanics, and Hamiltonian dynamics. The group has organized since 1992 the Spring meeting of the semianual Maryland-Penn State Dynamical Systems Conference, one of the main gatherings of the dynamical systems community in the USA. The group runs a weekly seminar in dynamics and most semesters there is either a student seminar in dynamics, or RIT, or both.

This course provides a broad introduction to the subject of dynamical systems. Topics include topological dynamics, symbolic dynamics, ergodic theory, hyperbolic dynamics, chaotic dynamics. The course is based on numerous examples including logistic maps and strange attractors. Math 642-643 form a one-year sequence designed for students interested in dynamics and applied dynamics.

The grade will be based on homework assignments (100 points), midterm exam (100 points), and final exam (150 points).