Course summary

Regular dynamics
- Linear/non-linear flows
- Phase portrait analysis
- Fixed points
- Linear stability analysis
- Index theory

Chaotic dynamics
- Lyapunov exponents
- Strange attractors
- Fractal dimensions
- Transitions to chaos
- Hamiltonian chaos

Bifurcations
- Normal forms
- Slow passage
- Catastrophes
- Global bifurcations

Periodic solutions
- Closed orbits
- Limit cycles
- Relaxation oscillators

Special systems
- Hamiltonian systems
- Conservative systems
- Billiard systems