**Math 181/281**                                              **Spring 2011**
### Tentative Schedule of Lectures and Examinations

| Date | | | Topic |
|------|------|------|-------|
| W | Jan. | 19 | What is a dynamical system? |
| M | Jan. | 24 | Fundamental existence and uniqueness theory |
| W | Jan. | 26 | Existence and uniqueness theory continued |
| M | Jan. | 31 | Continuous dependence on initial conditions |
| W | Feb. | 2 | Continuous dependence (continued) |
| M | Feb. | 7 | Continuous dependence on parameters |
| W | Feb. | 9 | Continuous dependence (continued) |
| M | Feb. | 14 | Definition of dynamical systems |
| W | Feb. | 16 | Integral curves, flow domains and flows |
| M | Feb. | 21 | Linear systems |
| W | Feb. | 23 | Equilibrium points and stability |
| M | Feb. | 28 | Review |
| W | Mar. | 2 | **Exam 1** |
| M | Mar. | 7 | Classification of equilibria |
| W | Mar. | 9 | Local theory: Linearization |
| M | Mar | 14 | **Spring Recess** |
| W | Mar. | 16 | **Spring Recess** |
| M | Mar. | 21 | Linearization (continued) |
| W | Mar. | 23 | Stable and unstable manifolds |
| M | Mar. | 28 | The Hartman-Grobman Theorem |
| W | Mar. | 30 | Orbits, limit sets and attractors |
| M | Apr. | 4 | Invariant sets |
| W | Apr. | 6 | Liapunov functions |
| M | Apr. | 11 | Planar systems |
| W | Apr. | 13 | The Poincaré-Bendixson Theorem |
| M | Apr. | 18 | Structural stability |
| W | Apr. | 20 | Bifurcation |
| M | Apr. | 25 | Review |
| W | Apr. | 27 | **Exam 2** |
| M | May | 2 | Review |
| W | May | 4 | Review |
| M | May | 9 | **Final Examination** |