

MATH 148 - Calculus II for Biological Sciences

TEXTBOOK: *Calculus for Biology and Medicine*, Third Edition, by Claudia Neuhauser, Pearson (2011). ISBN: 0-321-64468-9

SCHEDULE - Note: This is a spring schedule.

- **Week 1** -- 7.2, 7.3. Topics covered: integration by parts, partial fractions.
- **Week 2** -- 7.3, 7.4, 7.6. Topics covered: partial fractions, improper integrals, Taylor approximation.
- **Week 3** -- 7.6, 8.1. Topics covered: Taylor approximation, solving differential equations.
- **Week 4** -- 8.1, 8.2. Topics covered: equilibria and their stability.
- **Week 5** -- 9.1. Topics covered: linear systems. **EXAM 1 (7.2-7.4, 7.6, 8.1-8.2)**
- **Week 6** -- 9.2, 9.3. Topics covered: matrices, linear maps, eigenvalues, eigenvectors.
- **Week 7** -- 9.4, 10.1, 10.2. Topics covered: analytic geometry, functions of several variables, limits and continuity.
- **Week 8** -- 10.2, 10.3. Topics covered: limits and continuity for functions of several variables, partial derivatives.
- **Week 9** - 10.4. Topics covered: tangent planes, differentiability, linearization. **EXAM 2 (9.1-9.4, 10.1-10.3)**
- **Week 10** - 10.5.1, 10.6.1. Topics covered: chain rule for functions of two variables, maxima and minima.
- **Week 11** - 10.6.1, 10.7. Topics covered: maxima and minima, the Hessian matrix, systems of difference equations.
- **Week 12** - 11.1, 11.2. Topics covered: homogeneous linear first-order system of differential equations, applications.
- **Week 13** - 11.3. Topics covered: nonlinear autonomous systems. **EXAM 3 (10.4-10.7, 11.1, 11.2)**
- **Week 14** - 11.4. Topics covered: applications of nonlinear systems.
- **Week 15** - Review for FINAL.