

## MATH 2700 Syllabus

**Text: Blanchard, Devaney, Hall, *Differential Equations*, third edition**

| SECTION             | NUMBER of 50 minute periods | TOPICS   |
|---------------------|-----------------------------|--|
| 1.1                 | 2                           | Modeling, logistic equation, IVP, Predator Prey                  |
| 1.2                 | 2                           | Separation of variables, mixing problems                         |
| 1.3                 | 2                           | Slope fields, RC circuits  |
| 1.4                 | 1                           | Euler's method   |
| 1.5                 | 2                           | Existence and Uniqueness   |
| 1.6                 | 1                           | Equilibria, Phase line   |
| 1.7                 | 1                           | Bifurcations   |
| Review and Exam I   | 2                           |  |
|                     |                             |  |
| 1.8-1.9             | 3                           | Linear Equations, Integrating factors                            |
| 2.1                 | 2                           | Intro to Systems   |
| 2.2                 | 2                           | Phase portraits, etc   |
| 2.4                 | 1                           | Euler  |
| 3.1                 | 2                           | Linear Systems, superposition, linear independence, determinants |
| Review and Exam II  | 2                           |  |
| 3.2                 | 2                           | Straight line solutions, eigenvalues, characteristic equation    |
| 3.3-3.4             | 3                           | Real eigenvalues, complex eigenvalues                            |
| 3.6                 | 1                           | Harmonic Oscillators   |
| 3.7                 | 2                           | Trace-det plane  |
| 4.1-4.3             | 3                           | Forced Oscillators, resonance                                    |
| Review and Exam III | 2                           |  |
| 6.1-6.5             | 5                           | Laplace transforms   |
| Review              | 1                           |  |
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