**Math 5B Suggested Syllabus**

(Based on 29 lectures)

**Text:** *Biocalculus, Calculus for the Life Sciences*, Stewart and Day, 2nd Edition

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| **Lecture**  | **Section**  | **Topic**  |
| 1 | 5.1 | Areas, distances |
| 2 | 5.2 | Definite integral |
| 3 | 5.3 | Fundamental theorem of Calculus |
| 4 | 5.4 | Substitution rule |
| 5 | 5.5 | Integration by parts |
| 6 | 5.6 | Partial fractions |
| 7 | 5.7,5.8 | Integration using tables; Improper integrals |
| 8 | 6.1 | Areas between curves |
| 9 | 6.2,6.4 | Average values; Volumes |
| 10 | 6.4 | Volumes (continued) |
| 11 | 7.1 | Modeling with differential equations |
| 12 | 7.2 | Phase plots, equilibria, stability |
| 13 | 7.3 | Direction fields and Euler’s method |
| 14 |  | Review |
| 15 |  | **Midterm** |
| 16 | 7.4 | Separable equations |
| 17 | 7.5 | Systems of differential equations |
| 18 | 7.6 | Phase plane analysis |
| 19 | 8.1 | Coordinate systems |
| 20 | 8.2 | Vectors |
| 21 | 8.3 | Dot product |
| 22 | 9.1 | Functions of several variables |
| 23 | 9.2 | Partial derivatives |
| 24 | 9.3 | Tangent planes and linear approximations |
| 25 | 9.4 | The chain rule |
| 26 | 9.5 | Directional derivatives and the gradient vector |
| 27 | 9.6 | Maximum and minimum values |
| 28 |  | Final Review |
| 29 |   | Final Review |