

## Math 2A suggested syllabus 2017-18 academic year (based on 29 lectures)

**Text:** Stewart, *Calculus: Early Transcendentals* or *Single Variable Calculus: Early transcendentals*, 8th Edition or UCI Custom Edition, 8th Edition.

| Lecture | Section       | Topic                                                                             |
|---------|---------------|-----------------------------------------------------------------------------------|
| 1       | 1.1, 1.2, 1.3 | Four ways to represent a function, Mathematical models, Transformations of graphs |
| 2       | 1.4           | Exponential Functions. Start 1.5.                                                 |
| 3       | 1.5           | Inverse Functions and logarithms                                                  |
| 4       | 2.1, 2.2      | Tangent and Velocity Problems, Limit of a Function                                |
| 5       | 2.3           | Calculating Limits from Limit Laws                                                |
| 6       | 2.5           | Continuity                                                                        |
| 7       | 2.6           | Limits at Infinity, Horizontal Asymptotes                                         |
| 8       | 2.7           | Derivative and Rate of change                                                     |
| 9       | 2.8           | Derivative as a function                                                          |
| 10      |               | Review                                                                            |
| 11      |               | <b>Midterm #1</b>                                                                 |
| 12      | 3.1, 3.2      | Derivative of a Polynomial and Exponential Function, Product and Quotient Rules   |
| 13      | 3.2, 3.3      | Derivative of Trigonometric Functions                                             |
| 14      | 3.4           | Chain Rule                                                                        |
| 15      | 3.5           | Implicit Differentiation                                                          |
| 16      | 3.6, 3.8      | Derivative of Logarithm Functions                                                 |
| 17      | 3.8, 3.9      | Exponential Growth and Decay                                                      |
| 18      | 3.9           | Related Rates                                                                     |
| 19      | 3.10          | Linear Approximation and Differentials, Review                                    |
| 20      |               | <b>Midterm #2</b>                                                                 |
| 21      | 4.1           | Maximum and Minimum Values                                                        |
| 22      | 4.2           | Mean Value Theorem                                                                |
| 23      | 4.3           | How derivatives affect the shape of a graph                                       |
| 24      | 4.4           | Indeterminate Forms and l'Hôpital's rule                                          |
| 25      | 4.5           | Curve Sketching                                                                   |
| 26      | 4.7           | Optimization                                                                      |
| 27      | 4.9           | Antiderivatives                                                                   |
| 28      |               | <i>Catch-up and Review</i>                                                        |
| 29      |               | Review for final                                                                  |

In case of a quarter with 28 lectures, skip the “Catch-up and review” day prior to the final.