ASSIGNED HOMEWORK

- This homework is based on: M.L. Lial, T.W. Hungerford and J.P. Holcomb Jr.: "Mathematics with Application in the Management, Natural and Social Sciences", 9th edition
- Homework will not be collected or graded. Nevertheless, it is crucial to do the homework as part of your preparation for the exams. To keep up, I recommend that **after every lecture you should solve the homework problems corresponding to the material covered on that day's lecture.** Do the assigned reading and problems in the specified order.

Limits homework

Rates of change
Read §11.1, §11.3
§**11.3:** 1-4, 26-30 (with infinitesimals)

Simple limits
Read §11.1 again
§**11.1:** 31-40, 42-44, 47-52

Side limits and infinity
Read §11.2
§**11.2:** 13,14, 21-24
§**11.2:** 25-28 (with infinitesimals, not with calculator)
§**11.1:** 41, 45, 46 (with infinitesimals and side limits; the limit for 45 **does** exist!)

Limits at infinity
Read §11.2
§**11.2:** 43-54

Review problems
Chapter 11: 5-24 (do algebraically via infinitesimals)

Derivatives Homework

Differentiation rules. I. Addition rule
Read §11.4, §11.5 (skip marginal analysis)
§**11.5:** 1-40
§**11.5:** 41-44 (tangent lines)
§**11.5:** 59,66-68 (optional)

Differentiation rules. II. Products/Quotients
Read §11.6
§**11.6:** 1-28

§**11.6:** 31-34 (tangent lines)

Differentiation rules. III. Chain rule
Read §11.7
§**11.7:** 21-48

Marginal Analysis
Read §11.5 (applications part)
§**11.5:** 48, 51, 52
§**11.7:** 53, 54c, 55
Read §11.6 (average cost)
§**11.6:** 35-37
§**11.7:** 57
Read §11.7 (applications)
§**11.7:** 62,63,65,58,59

Differentiation rules. IV. Exponentials/Logarithms
Read §11.8
§**11.8:** 1-52

Review problems
Chapter 11: 41-76
Redo the marginal analysis problems

Curve Analysis and Optimization

Algebra Review
Read review notes on sign charts
Read §2.5 (algebra review)
§**2.5:** 1-21, 29-37, 39 (use sign charts for all problems)

Monotonicity
Read §12.1
§**12.1:** 9-16, 19-28, 29-42 (use sign charts for all problems)
§**12.1:** 49, 53 (applications)

Concavity and curve analysis
Read §12.2
§**12.2:** 25-32
§**12.2:** 35-46 (make a monotonicity, concavity, and variation sign chart for each of these functions)
§**12.4:** 5, 9-22 (make a monotonicity, concavity, and variation sign chart for each of these functions)

Optimization
Read §12.3
§**12.3:** 7-22
§**12.3:** 34, 37-44,49,50 (applications)

Review problems
Chapter 12: 5-16, 21-34, 36, 42-47

Integrals

Simple definite integrals
Read §13.3 (what is a definite integral)
Read §13.1 (what is antiderivative; examples 1,2)
Read §13.4 (fundamental theorem of calculus; examples 1,2,3,5,6)
Read corresponding lecture notes too.
§**13.4:** 1,2,5-8, 11,12,19, 20

Simple indefinite integrals
Read §13.1 thoroughly
§**13.1:** 5-42

Method of substitution
Read §13.2
Read §13.1, §13.4 (again, emphasis on all examples)
Read corresponding lecture notes
§**13.2:** 3-40
§**13.4:** 3,4,9,10, 13-18, 21-30

Applications of Integrals
Read §13.5
§**13.5:** 24-31 (surplus)

Review problems
Chapter: 35-48, 59-63, 1-28

Multivariate Calculus

Partial derivatives
Read §14.1, §14.2
§**14.2:** 3-38,44, 53cd, 57,

Extrema
Read §14.3
§**14.3:** 3-20
§**14.3:** 27-40 (applications)