

Mathematics

Module I: Analysis in the Euclidean space

Prof. Gerd Weinrich

1. Derivatives, differentials and tangent spaces (SB: 14.1, 14.4).
2. Directional derivatives and gradients (SB: 14.5-6).
3. Jacobians, higher-order derivatives and Hessians (SB: 14.7-8).
4. Taylor expansion (SB: 30.2-3).
5. Convexity, concavity and quasi-concavity (SB: 3.2, 21.1-3; MWG: M.C).
6. Implicit Function Theorem (SB: 15.1-3, MWG: M.E).

References

- Carl P. SIMON and Lawrence BLUME (SB), *Mathematics for Economists*. W.W. Norton & Company, 1994.
- Andreu MAS-COLELL, Michael D. WHINSTON and Jerry R. GREEN (MWG), *Microeconomic Theory*. Oxford University Press, 1995.