

- CHAPTER 1. PROOFS, BASIC CONCEPTS, SOME PROBABILITY THEORY.
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  2. Sets.
  3. Relations.
  4. Fields.
  5. Sigma-algebra.
  6. Functions.
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  8. Random variables.
  9. Metric and metric spaces.
  10. Continuity and completeness.
  11. Euclidean spaces, inner products, norm.
  12. Convex sets.
  13. Linear (in)dependence, basis.
  14. Complex numbers.
- CHAPTER 2. MATRICES AND LINEAR SYSTEMS.
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  2. Matrix Operations.
  3. Some special matrices.
  4. More on special matrices.
  5. Determinant and inverse of a square matrix
  6. Quadratic forms.
  7. Trace of a square matrix.
  8. Rank of a matrix.
  9. Partitioned matrices.
  10. Systems of linear equations.
  11. Eigenvalues and eigenvectors.
- CHAPTER 3. UNIVARIATE FUNCTIONS.
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  2. Derivatives and differentials.
  3. A digression on trigonometric functions.
  4. Taylor and Maclaurin series approximations of functions.
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- CHAPTER 4. MULTIVARIATE FUNCTIONS.
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  2. Vector-valued functions.
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  4. Homogeneous and homothetic functions.
  5. Concave and convex functions.
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- CHAPTER 5. STATIC OPTIMIZATION.
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  4. The envelope theorem.
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- CHAPTER 6. DYNAMIC MODELS (1): DIFFERENTIAL EQUATIONS.
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