SUBJECTS OF THE FINAL EXAMINATION

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For announcements about the course, homeworks, results of your examinations, etc., see the COURSE WEB PAGE:

   web page of the textbook for some supplements: http://www.aw-bc.com/thomas

- CALCULUS DVD. Obtain a copy of the DVD which I give in the first week. This DVD contains presentations for the course, some supplements and some mathematical software.

- GRADING:

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<th>Midterm</th>
<th>Final Examination</th>
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- SUBJECTS OF THE FINAL EXAMINATION:

All of Chapters 7, 10, 11 and 12 and Appendices A.6, A.7, A.9, A.11, A.12 of your textbook except Section 10.6:

- Completeness (the Least Upper Bound Property) of the Real Number System:
  Axiomatic Construction of the Real Number System; the Least Upper Bound sup(A) and the Greatest Lower Bound inf(A) for a Subset A of Real Numbers; Sequences of Real Numbers; Convergent Sequences; Divergent Sequences; Divergence to ±∞; Subsequences; Monotone Convergence Theorem; Decimal Expansion of Real Numbers; The Euler Constant e and the Exponential Function exp(x) = e^x.

- Infinite Sequences and Series: Theory of Real Numbers; Sequences; Commonly Occurring Limits; Infinite Series; Improper integrals; The Integral Test; Comparison Tests; The Ratio and Root Tests; Alternating Series; Absolute and Conditional Convergence; Power Series; Taylor and Maclaurin Series; Convergence of Taylor Series; Convergence of Power Series and Proof of Taylor’s Theorem; The Binomial Series.
  → All of chapter 7, Section 5.7 and appendices A.6, A.7, A.9.

- Vector-Valued Functions and Motion in Space: Vector Functions and Their Derivatives; Integrals of Vector Functions; Arc Length in Space; Curvature of a Curve; Tangential and Normal Components of Acceleration.
  → All of chapter 10 except Section 10.6.

- Partial Derivatives: Functions of Several Variables; Limits and Continuity in Higher Dimensions; Partial Derivatives; The Mixed Derivative Theorem and the Increment Theorem; The Chain Rule; Directional Derivatives and Gradient Vectors; Tangent Planes and Differentials; Extreme Values and Saddle Points; Lagrange Multipliers; Taylor’s Formula for Two Variables.
  → All of chapter 11 and appendices A.11, A.12.

- Multiple Integrals: Double and Iterated Integrals over Rectangles; Double Integrals over General Regions; Area by Double Integration; Double Integrals in Polar Form; Triple Integrals in Rectangular Coordinates; Moments and Centers of Mass; Triple Integrals in Cylindrical and Spherical Coordinates; Substitutions in Multiple Integrals.
  → All of chapter 12.