THE OHIO STATE UNIVERSITY

Mathematics 2173
Engineering Mathematics B
Autumn, Spring
3 credits

**Catalog Description:**
Multiple integrals, line integrals, vector fields, second order ordinary differential equations.

**Prerequisite:**
Math 1172, 1544, or 154.

**Exclusions**:
Not open to students with credit for 1152, 2153, or for any higher numbered math class, or for any quarter-system math class numbered 254 or higher.

**Text:**
*Calculus for Scientists and Engineers: Early Transcendentals*, 2nd OSU custom edition, by Briggs, Cochran, Gillett, published by Pearson, ISBN: 9781269753449

**Topics List:**

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|---|---|
| 13.6 | (Review of) Directional Derivatives and the Gradient Vector |
| 13.8 | Maximum and Minimum Values |
| 13.9 | Lagrange Multipliers |
| 14.1 | Double Integrals over Rectangular Regions |
| 14.2 | Double Integrals over General Regions |
| 14.3 | Double Integrals in Polar Coordinates |
| | *Midterm 1* |
| 14.4 | Triple Integrals |
| 14.5 | Triple Integrals in Cylindrical & Spherical Coordinates |
| 14.7 | Change of Variables in Multiple Integrals |
| 15.1 | Vector Fields |
| 15.2 | Line Integrals |
| 15.3 | Conservative Vector Fields |
| | *Midterm 2* |
| 16.1 | Basic Ideas of Second Order ODE's |
| Appendix C | Complex Arithmetic |
| 16.2 | Linear Homogeneous Equations |
| 16.3 | Linear Homogeneous Equations |
| 16.4 | Applications; Complex Forcing Functions |
| | *Final* |