

Recitation 1: The basic tools

- Calculus Review: Einstein Notation, Vector Calculus, Taylor Series Expansion
 - Total (material) Derivative
 - Concepts of: Pathlines, Streaklines, Streamlines
-

References:

- Vector Calculus:
Reference: F.B. Hildebrand, "Advanced Calculus for Applications", Prentice Hall, 2nd edition
Quick review: SAH, "Fluid Flow", Fourth Edition, Appendix 3
- Film: Eulerian and Lagrangian Descriptions in Fluid Mechanics.
0-8min: Definitions of Eulerian/ Lagrangian descriptions
8-12min: Advantages of Eulerian description
12-19min: Material derivative of scalars
19-24min: Material derivative of vectors
24-27min: Summary