

Lecturer David Silvester • (Sergei Fedotov ◦)
Office Alan Turing 1.117
Email d.silvester@manchester.ac.uk (sergei.fedotov@manchester.ac.uk)
Webpage <https://personalpages.manchester.ac.uk/staff/david.silvester/>
Office Hour Wednesday 1.30 to 2.30 pm •
<https://zoom.us/j/4730677767>

Monday 9–10 Weekly review class (University place Theatre B)

Monday 12–1 or 1–2 Tutorial class (different locations)

Assessment

Test in week 9 20%

Final Exam 80%

Useful resource

- ★ Helping Engineers Learn Mathematics (HELM)
<https://www.mub.eps.manchester.ac.uk/helm/>

Outline syllabus

- *Integrals over shapes.* Concepts of volume, mass, force, weight, moment of inertia. Double and triple integrals in different coordinate systems.
- *Vector calculus.* Gradient, divergence and curl operators. Curves in three dimensions. Conservative vector fields. Vector integral theorems.
- *Laplace transforms.* Partial fractions. Shift theorems. The study of mechanical vibrations. Causal functions.
- *Numerical methods.* Interpolation. Least squares approximation. Quadrature.
- *Probability and statistics.* Random variables. Discrete and continuous probability distributions. Central limit theorem. Estimation and confidence intervals. Hypothesis testing.