

## School of Mathematics

### Module MA1241 — Mechanics I

2009-10

( JF Mathematics, JF Theoretical Physics & SF Two-subject Moderatorship )

**Lecturer:** Dr. Stefano Kovacs

**Requirements/prerequisites:**

**Duration:** Michaelmas term, 11 weeks

**Number of lectures per week:** 3 lectures including tutorials per week

**Assessment:**

**End-of-year Examination:** This module will be examined jointly with MA1242 in a 3-hour examination in Trinity term, except that those taking just one of the two modules will have a 2 hour examination.

**Description:**

- Introduction (Mechanics as the basis of Physics);
- Mathematical preliminaries (Vectors and their role in Mechanics, elements of vector algebra.); Kinematics;
- Newton's Laws: the foundations of Classical Mechanics;
- Linear momentum (Dynamics of multi-particle systems, centre of mass, conservation of momentum, impulse);
- Work and Energy. (Definition of work and the work-energy theorem,
- Potential and kinetic energy, conservative and non-conservative forces, conservation of energy);
- Angular momentum (Angular momentum of a point-like mass, motion with angular momentum, conservation of angular momentum).

Further information at [http://www.maths.tcd.ie/~kovacs/Teaching/Mechanics/Classical\\_Mechanics.html](http://www.maths.tcd.ie/~kovacs/Teaching/Mechanics/Classical_Mechanics.html)

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