

— title: Celestial Mechanics next: /guide/celestial-mechanics/keplers-laws weight: 4 —

Celestial Mechanics deals with the motions of objects in outer space. This unit has been split up into 7 sections:

- Kepler's Laws: Covers Newton's Law of universal gravitation and the three Kepler's laws
- Bound Orbits: Covers elliptical orbits
- Unbound Orbits: Covers parabolic and hyperbolic orbits
- Orbital Elements: Covers orbital elements
- Three Body Systems: Covers three body systems, lagrange points, tidal forces and virial theorem
- Orbital Maneuvers: Covers basics of orbital maneuvers, hohmann transfers, bi-elliptic transfers and gravity assists
- Advanced Topics: Covers LRL vector, apsidal precession, orbits in general relativity and gravitational waves