Communications:

Homework and computer problems should be written as informal reports. They should be submitted as a single, combined PDF file.

Grading:

HW problems:	25%
Computational problems:	25%
Mid-term exam:	25%
Final exam:	25%

Topics:

Principles of orbital mechanics.
Orbital trajectories, transfers, time of flight.
Trajectory propagation and targeting.
Orbit perturbation formulation and analysis.
Restricted 3-body problem with applications.

In-Class vs Remote course access:

The following items detail my plans for delivering lectures and office hours. I will deliver the lectures at the scheduled time in the room and keep a Zoom channel open during the lectures. The lectures will also be recorded and available on the Canvas website.

The following guidelines apply to the 001 section. The 002 section is, by design,

Syllabus (Scheeres):

Orbital mechanics
    - Formulation of two-body, three-body and n-body problems
    - The two-body problem solution
    - Elliptical and circular orbits
    - Parabolic and hyperbolic trajectories
    - 3-D trajectories and orbit elements
    - Time of flight and orbit propagation

Orbital transfers
    - Impulsive maneuvers
    - Lambert's theorem
    - 3-D Targeting
    - Fuel optimal considerations

Orbit perturbation formulations
    - Variation of constants
    - Lagrange's Equations
    - Gauss' Equations
    - Mean elements and averaging

Orbit perturbation analysis
    - Effect of non-spherical gravity fields
    - Low-thrust trajectories
    - Atmospheric drag
    - Tidal and third body effects

Restricted 3-body problem with applications
    - Derivation of equations of motion
    - Jacobi Integral, Zero-Velocity Curves, and Lagrange Points
    - Hill approximation
    - Numerical computation and analysis of orbits!