

Tuesday-Thursday, 1:00-2:15, AERO 114

: Damennick Henry, Damennick.Henry@colorado.edu,
< Office Hours: Monday 9:00 am, AERO N453, and over zoom (see below)
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< Office Hours: Friday 11:00 am, AERO 302, and over zoom (see below)

Introduction to astrodynamics with an emphasis on analytical approaches — alternative to ASEN 5050. General solution of the 2-body problem. Orbital trajectories, transfers, targeting, and time of flight. Orbit perturbations and averaging analysis. Restricted 3-body problem.

: Undergraduate orbital mechanics course (equivalent to ASEN 3200) or permission of the instructor.

We will be using slack to facilitate course discussions. Please use the following link to join:

A live feed of the class will streamed over zoom at the following link. We will also be using this zoom link to host office hours.

Link:
Passcode:

:
Selected excerpts from "Orbital Motion in Strongly Perturbed Environments" and other material will be distributed via Canvas.

:
A.E. Roy, Orbital Motion 4th edition, Institute of Physics Publishing, 2005.

- :
< D.J. Scheeres. Orbital Motion in Strongly Perturbed Environments: Applications to Asteroid, Comet and Planetary Satellite Orbiters," Springer-Praxis Books in Astronautical Engineering. 2012. ISBN 978-3-642-03255-4, e-ISBN 978-3-642-03256-1, DOI 10.1007/978-3-642-03256-1
< Vallado, . 4th Ed. Microcosm Press, 2013.
< Bate, Roger R., D.D. Mueller, and J.E. White, , New Dover Publications, New York, 1971.

- < J.E. Prussing and B.A. Conway, *Orbital Mechanics*, 2nd Ed., Oxford University Press, 2012.
- < J.M.A. Danby, *Fundamentals of Celestial Mechanics*, 2nd Ed., Willmann-Bell, 1992.
- < V.I. Arnold, V.V. Kozlov, A.I. Neishtadt, *Mathematical Aspects of Classical and Celestial Mechanics*, 3rd edition, Springer, 2006.
- < C. Marchal, *The Three-Body Problem*, Elsevier, 1990.
- < F.R. Moulton, *An Introduction to Celestial Mechanics*, 2nd edition, Dover, 1970.
- < V. Szebehely, *Theory of Orbits: The*

The following items detail the plans for delivering lectures and office hours, accommodating any restrictions that may arise from the current pandemic crisis. If the campus transitions to a more restrictive stage, the course has been designed to be able to be run completely remotely. In this case, we will still deliver the lectures at the scheduled time, in general, and keep the 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 001B section is, by design, completely remote. Basically, the 001 students can access the 001B remote section functionality. The 001B students will also be able to dial into the Zoom broadcast if interested.

Lectures will be delivered, except as noted, in AERO 114.

All lectures will be recorded and available on the CANVAS website shortly after the lecture.

We will stream a live Zoom session from my laptop during the lecture, allowing for questions from remote students over the Chat feature (see zoom link above).

When in the classroom, all CU guidelines will be strictly enforced.

REQUIRED SYLLABUS STATEMENTS

Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the [classroom behavior](#) policy, the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

Requirements for COVID-19

As a matter of public health and safety, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. CU Boulder currently requires COVID-19 vaccination and boosters for all faculty, staff and students. Students, faculty and staff must upload proof of vaccination and boosters or file for an exemption based on medical, ethical or moral grounds through the MyCUHealth portal.

The CU Boulder campus is currently mask-optional. However, if public health conditions change and

