

# **MECH524 – Principles of Dynamics** **Fall 2019**

**Course Website (linked from Canvas):**  
*www.engr.colostate.edu/~dga/mech524*

**NOTE** – The detailed course syllabus (with reading and homework assignments), course policies, and current grades are available on the course website.

**Instructor:**

David G. Alciatore, Ph.D., PE (“Dr. Dave”), Engrg A112

See contact info and office hours on the course website.

**Class Time/Location:**

MWF 11-11:50 am, Engrg B2

**Catalog Description:**

Kinematics and dynamics of rigid body motion; Lagrangian and Hamiltonian formulations of mechanics; applications to engineering problems.

**Also:**

Review of particle kinematics and dynamics at an advanced level; 3-D mechanics; gyroscopic motion.

**Prerequisites:**

MECH324 (Dynamics of Machines)

**Textbook:**

“Principles of Dynamics,” 2nd Edition, by Greenwood, Prentice Hall, 1988.

**Course Objectives:**

1. Become proficient with applying basic **kinematic and dynamic relations**.
2. Learn how to use and apply **Lagrange's Equations**.
3. Learn how to use and apply **3-D rigid body dynamics** principles
4. Develop a basic understanding of **Euler's Equations** and **gyroscopic motion**.
5. Look at the world differently and **have fun**.

**Course Grading:**

**Homework:** 20%

**Exam I:** 30%

**Exam II:** 30%

**Final Exam:** 20%

See **Section IV** in the **Course Policies** for information on +/- grading, group evaluations, sliding scale, and other grading-related details.