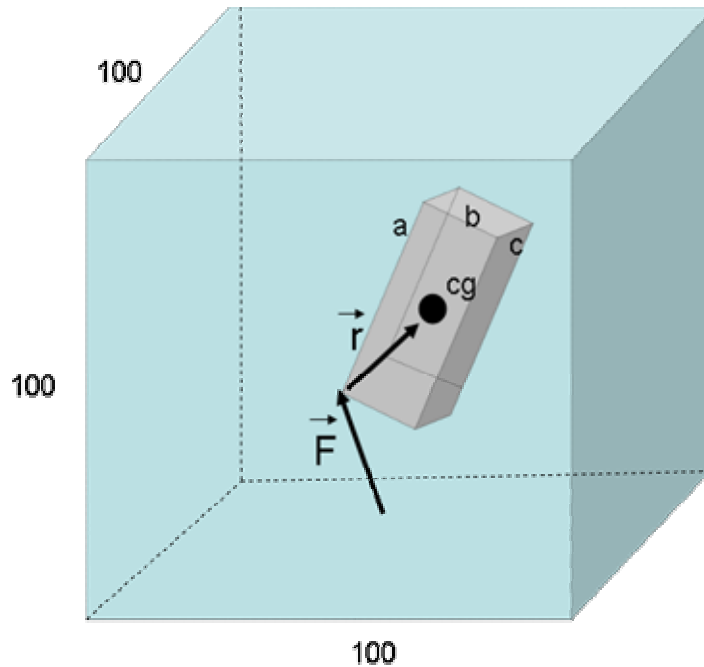# ME 534 COMPUTER-BASED MODELING AND SIMULATION
Instructor: Prof. Cagatay Basdogan

RIGID BODY SIMULATION of a 3D OBJECT

Consider a 3D rectangular box defined by three sides **a = 20, b = 10**, and **c = 5** as shown in the figure (grey colored). Simulate the rigid-body motion (translation and rotation) of this box under the effect of gravitational forces and user-specified forces and torques (**m**: mass of the box is 1 kg). Constraint the motion of the box (using the principles of conservation of momentum) such that it will stay inside the cubic volume (blue colored) shown in the figure.

References:

1. Physically Based Modeling, Andrew Witkin and David Baraff, Siggraph 2001 Course Notes (see the online notes on Rigid Body Dynamics)
   http://www.pixar.com/companyinfo/research/pbm2001/index.html
   http://www.cs.cmu.edu/afs/cs/user/baraff/www/pbm/pbm.html