

# Resources available for Final Projects

Any and all of the following are available for final projects. Please keep in mind that, although much can be done with this equipment, much can be done without it!

N	Item	Possible use
1	50-lb pancake transducers	Measure larger forces, e.g., arm/leg and biting torques
1	250-lb pancake transducers	Measure really large forces, e.g., running/walking GRFs
4	10-lb pancake transducers	Measure loads on small to medium sized bones
2	2-lb compression & extension transducers	Measure small in-line loads during positive and negative strains
2-4	100-g, 300-g, 1-kg, and 2-kg force transducers	Measure small to loads at a single point
6	3 and 6-DOF accelerometer	Measure acceleration/forces on bodies and objects
1	Three-point tester from MP2	Measure beam load and deformation with load capacities according to transducers listed above
1	Tensile compression and extension tester	Measure linear deformation with load capacities according to transducers listed above
5	Arduino Uno microcontrol boards	Measure and amplify signals from instruments
1	Digital vernier calipers	Measure thickness and width
5	50-m laser measurer	Measure distance between two points
1	0-60 m/s anemometer	Measure wind speed up to 60 m/s
2	150 fps high resolution ice-cube cameras	High-resolution kinematic analysis, perhaps in 3D
1	1000 fps high resolution camera	High-resolution kinematic analysis
1	Swim tunnel	Measure drag and lift torques on shape, swimming kinematics of fishes

1	Laser and bouyant micro-sphere setup	Qualitative or quantitative assessment of fluid flow in the swim tunnel
1	10-lb linear actuator with position feedback	Move small loads, perhaps to measure strain and stress
1	240-lb linear actuator with position feedback	Move large loads, perhaps to measure strain and stress
many	Servo motors for rotary motion	Measure torsional loads, angular loads
1	3D printer with dual extruders	Print shapes in more than one material, models for dynamic analysis in swim tunnel or bending/tensile testing
1	stereo dissecting microscope with camera	Observing small morphologies, imaging experiments at small size scales