Queen's University
School of Kinesiology and Health Studies

Course Name: **KNPE 153/3.0** Introductory Biomechanics	**Course Instructor:** Dr. Patrick Costigan and Ms. Megan McAllister	**Contact Hours:** Lectures: 3 x 1 hr / 12 weeks Labs: 1 x 1 hr / 12 weeks
		Prerequisite: BSCH KINE students level one or above.
		Exclusion:

Course Description:

In this course, we will learn fundamental concepts to better understand human movement. We will also learn how to analyze human movement using information obtained from different measurement tools. Through lectures and tutorials, we will provide examples of different measurement tools to demonstrate how biomechanics can be used to enhance and maintain human health, fitness, and performance.

Course Texts:

Biomechanics of Sport and Exercise. Peter M. McGinnis. Human Kinetics, Champaign, IL. 2013 3rd Ed. (Recommended)

All course notes will be available on the OnQ page for this course. Course material is organized by topic, with separate sections for the tutorial and lecture material.

Learning Outcomes:

- Define key biomechanical concepts related to kinematic and kinetic motion in the context of human movement.
- Describe the methods used to take measurements and recognize the factors that affect measurement in order to better analyze human movement
- Construct and produce results from biomechanical analyses in clear, organized formats in the context of human movement analysis.
- Interpret and critique scientific literature by completing the written assignment by the end of the term

Course Evaluation:

Weekly quizzes	10%
Tutorial reflections	20%
Written assignment	5%
Midterm	20%
Final	45%

Course Outline

Introduction to biomechanics	Angular kinematics
Anatomical Terms and definitions	Forces. torques
Qualitative biomechanics	Linear kinetics, free body diagrams
Motion Capture (Demo)	Work, power and energy
Linear kinematics and projectiles	Qualitative biomechanics

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