EXERSCI 203
Biomechanics 1
(15 points)
(Semester 1, City Campus)
Prerequisite: EXERSCI 101 or SPORTSCI 101

Who should take this course?
In this course we explore the physical principles that underlie human movement. Topics covered include linear and rotational motion, forces, momentum, mechanical work, torque, moment of inertia, and centre of mass. At the completion of the course, students will be able to qualitatively and quantitatively describe two-dimensional movements, and explain their causes. These techniques have applications in industries that include sports performance and assessment, rehabilitation, ergonomics and workplace design, and activities in the course will be related to these fields. EXERSCI 203 is a mandatory course in the Exercise Sciences (formerly Sport and Exercise Science) programme.

Learning Outcomes
At the completion of this course, a student would be expected to:

- Fully understand the fundamental principles of biomechanics (kinematics and kinetics).
- Be able to quantitatively apply biomechanical principles to simplified movements, such as projectiles and motion of the centre of mass.
- Be able to apply biomechanics knowledge to systematically analyse more complex human movement, e.g. sporting events, gait analysis, ergonomics/human factors, etc.
- Be familiar with numerical calculations, data analysis, and presentation techniques used in biomechanics.
Learning and Teaching

Students are expected to attend 2 classes, 1 tutorial, and one 3 hour laboratory or tutorial session per week.

The laboratory sessions focus on demonstrating the practical implementation of theoretical concepts covered in the course.

Course content relies heavily on mathematics to develop quantitative explanations for biomechanical phenomena. Students are assumed to have a basic knowledge of algebraic manipulation, vectors, and trigonometry. Students without this background are strongly advised to seek out additional support in these areas before and during the course. This support may include accessing the Student Learning Centre, taking a course in basic mathematics or physics, forming a study group with your classmates, or arranging for personal tutoring.

Teaching Staff

Lecturer: Dr Angus McMorland
Department of Exercise Sciences
Faculty of Science
phone: (09) 923 6865
email: a.mcmorland@auckland.ac.nz

Assessment*

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<tr>
<th>Assessment</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Quizzes</td>
<td>15%</td>
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<tr>
<td>Labs and tutorials</td>
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<tr>
<td>Mid-semester test</td>
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<td>Final exam</td>
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*subject to change