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| <p>Course Name: KNPE 153/3.0</p> <p>Introductory Biomechanics</p> | <p>Course Instructor:</p> <p>Megan McAllister</p> | <p>Contact Hours:</p> <p>Fall Term 2021 (Remote)</p> |
| | | <p>Prerequisite:</p> <p>Reserved for BPHEH and BSCH KINE students only</p> |
| | | <p>Exclusion:</p> <p>PHED 153/3.0</p> |
| <p>Course Description:</p> <p>This course will present the fundamentals of biomechanics, including forces and moments, linear kinematics and kinetics, and work, power, and energy. Biomechanical tools and techniques used to assess human movement will also be introduced.</p> | | <p>Course Texts:</p> <p>TBD</p> |
| <p>Intended Student Learning Outcomes:</p> <p>At the end of this course you will,</p> <ol style="list-style-type: none"> 1. be able to qualitatively assess motion; 2. be familiar with and able to use the kinematic and kinetic equations; 3. be able to use these equations to analyze motion; 4. understand and be able to use methods to take measurements in biomechanics; 5. be able to present analyzed data in a clear, organized format; 6. understand, to a limited extent, the hardware and software tools used in biomechanics. | | <p>Course Evaluation:</p> <p>TBD</p> |
| <p>Course Outline</p> | | |
| Introduction to Course | | Centre of Gravity |
| What is Biomechanics? | | Stability |
| Force and Vectors | | Angular Kinematics |
| Anatomy: the Anatomical System, Planes | | Push Throw Movement Pattern |
| Anatomy: Skeletal System | | Movement Pattern Analysis |
| Anatomy: Muscular System | | Skill Analysis Methods |

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| Adding Forces – Free Body Diagram | Fluid Mechanics |
| Linear Kinematics – Projectiles | Stress and Strain – Materials |
| Linear Kinetics – Newton | Biomechanics and Injury |
| Work, Power, Energy | Ergonomics |
| Torque/Moments; Digitizing & Calibration | Research Tool and Applications |
| Levers | Selected Topics: Electromyography |

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