



**DEPARTMENT OF PHYSICAL EDUCATION, ATHLETICS AND  
KINESIOLOGY**

**COURSE OUTLINE – WINTER 2012**

**PE2060 - BIOMECHANICS**

**INSTRUCTOR:** Leigh Goldie      **PHONE:** 780-539-2978  
**OFFICE:** K218      **E-MAIL:** lgoldie@gprc.ab.ca

**OFFICE**

**HOURS:** Call or e-mail for appointments

**PREREQUISITE(S)/COREQUISITE:** none

**REQUIRED TEXT/RESOURCE MATERIALS:** McGinnis, P. 2005. *Biomechanics of sport and exercise, 2<sup>nd</sup> ed*. Windsor: Human Kinetics.

**CALENDAR DESCRIPTION:** This course presents a method of qualitative analysis of human movement based on a knowledge of biomechanical principles.

**CREDIT/CONTACT HOURS:** 3 (3-0-1). 3 hours lecture and 1 hour lab.

**DELIVERY MODE(S):** Classroom lectures and seminars.

**OBJECTIVES:**

1. Identify mechanical principles governing human motion.
2. Identify critical features of selected sport skills.
3. Design and carry out an observation plan.
4. Determine faults in observed performance.

**TRANSFERABILITY:** PEDS 206(3) – U of Alberta  
 Jr. KNES (3) – U of Calgary  
 KNES 3650 (3) – U of Lethbridge

\*\* Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.

<b>GRADING CONVERSION CHART</b>			
<b>Alpha Grade</b>	<b>4-point Equivalent</b>	<b>Percentage Guidelines</b>	<b>Designation</b>
<b>A<sup>+</sup></b>	<b>4.0</b>	<b>90 – 100</b>	<b>EXCELLENT</b>
<b>A</b>	<b>4.0</b>	<b>85 – 89</b>	
<b>A<sup>-</sup></b>	<b>3.7</b>	<b>80 – 84</b>	<b>FIRST CLASS STANDING</b>
<b>B<sup>+</sup></b>	<b>3.3</b>	<b>77 – 79</b>	
<b>B</b>	<b>3.0</b>	<b>73 – 76</b>	<b>GOOD</b>
<b>B<sup>-</sup></b>	<b>2.7</b>	<b>70 – 72</b>	
<b>C<sup>+</sup></b>	<b>2.3</b>	<b>67 – 69</b>	<b>SATISFACTORY</b>
<b>C</b>	<b>2.0</b>	<b>63 – 66</b>	
<b>C<sup>-</sup></b>	<b>1.7</b>	<b>60 – 62</b>	
<b>D<sup>+</sup></b>	<b>1.3</b>	<b>55 – 59</b>	<b>MINIMAL PASS</b>
<b>D</b>	<b>1.0</b>	<b>50 – 54</b>	
<b>F</b>	<b>0.0</b>	<b>0 – 49</b>	<b>FAIL</b>
<b>WF</b>	<b>0.0</b>	<b>0</b>	<b>FAIL, withdrawal after the deadline</b>

\*\*\*There might be slight deviations from this system in the conversion of percentage grades to alpha grades depending on the grouping of marks within the class.

### Guidelines on Cell Phones and Other Personal Electronic Devices

- Users of cell phones and other personal electronic devices must be attentive to the needs, sensibilities and rights of other members of the College community. The use of these devices must not disrupt the functions of the College overall and its classrooms and labs. Instructors have the right to have strict individual policies related to cell phones in order to provide and maintain a classroom environment that is conducive to learning and the respect of others.
- Cell phones, PDAs and pagers must be turned off and placed out of sight in classrooms and computer labs during instructional time. Devices can be turned on and set to silent mode only with the expressed consent of individual instructors. Sending or receiving text messages or gaming on a cell phone during class is not acceptable. In addition, cell phones and other personal electronic devices incorporating cameras must be turned off and out of sight in any area in which individuals have reasonable expectations of privacy. This includes classrooms and computer labs.
- Some instructors may have penalties for violations. If cell phones, pagers, calculators, recorders, digital cameras, PDAs, MP3 players or other personal electronic devices are used inappropriately for the purposes of cheating or academic dishonesty, then students who do so will be penalized appropriately under the Academic Honesty policy of Grande Prairie Regional College.

<b>COUSE EVALUATION:</b>	Skill Analysis projects	30%
	Test # 1	15%
	Test #2	15%
	Test #3	15%
	Test #4 – Final Exam Week	<u>25%</u>
		100%

**STUDENT RESPONSIBILITIES:** All assignments must be submitted on time. Late assignments will not be accepted. If a student has to miss a class for any reason, it is the responsibility of the student to contact the instructor.

**STATEMENT ON PLAGIARISM AND CHEATING:**

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

**COURSE SCHEDULE:**

Introduction – Why Study Biomechanics?

Chapter One – Forces: Maintaining Equilibrium or Changing Motion

Chapter Two – Linear Kinematics – Describing Objects in Linear Motion

Chapter Three – Linear Kinetics – Explaining the Causes of Linear Motion

Chapter Four – Work, Power & Energy: Explaining the Causes of Motion Without  
Newton

Chapter Five – Torques & Moments of Force: Maintaining Equilibrium or Changing  
Angular Motion

Chapter Six – Angular Kinematics: Describing Objects in Angular Motion

Chapter Seven – Angular Kinetics: Explaining the Causes of Angular Motion

Chapter Eight – Fluid Mechanics: The Effects of Water and Air

Chapter Thirteen – Qualitative Biomechanical Analysis to Improve Technique

Chapter Fourteen – Qualitative Biomechanical Analysis to Improve Training