

**GRANDE PRAIRIE REGIONAL COLLEGE**  
**DEPARTMENT OF PHYSICAL EDUCATION, ATHLETICS & KINESIOLOGY**  
**PE 2060 - BIOMECHANICS**  
**COURSE OUTLINE - WINTER 2010**

**INSTRUCTOR:** Leigh Goldie  
Office: K219 Phone: 539-2978 E-mail: lgoldie@gprc.ab.ca

**CLASS TIMES:** Monday and Wednesday, 8:30 – 9:50  
Thursday, 12:00 – 12:50

**COURSE DESCRIPTION:** This course is concerned with establishing the role biomechanics can play in the teaching and analysis of sport techniques. Emphasis is placed on those basic biomechanical concepts which are of the greatest importance in the qualitative analysis of sports performance.

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

**COURSE OBJECTIVES:**

The objective of this course is to provide students with the knowledge to:

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

**COURSE TEXT:** McGinnis, P. 2005. *Biomechanics of sport and exercise, 2nd ed.* Windsor: Human Kinetics.

**COURSE EVALUATION:**

Skill analysis projects	30%
Test #1 – Wed. Jan. 27	15%
Test #2 – Wed. Feb. 24	15%
Test #3 – Mon. Mar. 29	15%
Test #4 - Final Exam Week	<u>25%</u>
	100%

**GRADING SYSTEM:**

The following system will be used for converting percentage grades to alpha grades.

<b>Alpha Grade</b>	<b>4 – Point</b>	<b>Percentage</b>	<b>Descriptor</b>
A+	4.0	90 – 100	Excellent
A	4.0	85 – 89	Excellent
A-	3.7	80 – 84	First Class Standing
B+	3.3	76 – 79	First Class Standing
B	3.0	73 – 75	Good
B-	2.7	70 – 72	Good
C+	2.3	67 – 69	Satisfactory
C	2.0	64 – 66	Satisfactory
C-	1.7	60 – 63	Satisfactory
D+	1.3	55 – 59	Poor
D	1.0	50 – 54	Minimal Pass
F	0.0	0 – 49	Fail

\*\*\*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.

## **COURSE CONTENT:**

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