

JAN 15 2001

**GRANDE PRAIRIE REGIONAL COLLEGE**  
**DEPARTMENT OF PHYSICAL EDUCATION, ATHLETICS & KINESIOLOGY**  
**P. E. 2060 - BIOMECHANICS**  
**COURSE OUTLINE - WINTER 2001**

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

**CLASS TIMES:** Monday, 10:00 – 10:50  
Wednesday & Friday, 10:00 – 11:20

**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:** Kreighbaum, E. and Barthels, K.M. 1996. *Biomechanics: A qualitative approach for studying human movement*, 4<sup>th</sup> ed. Boston: Allyn and Bacon.

**COURSE EVALUATION:**

Skill analysis projects	30%
Test #1 - Fri. Jan. 19	15%
Test #2 - Mon. Feb. 12	15%
Test #3 - Mon. Mar. 19	15%
Test #4 - Wed. Apr. 11	<u>25%</u>
	100%

## COURSE CONTENT AND SCHEDULE

### PART ONE – January 3 – January 19

- Chapter 1 – The Study and Analysis of Human Motion
- Module C – Visualizing Forces
- Module D – Force and Movement
- Module E – Torque and Rotation
- Chapter 3 – Body Balance and Stability Control

**January 19 – Test No. 1**

### PART TWO – January 22 – February 12

- Chapter 4 – Biomechanics of the Musculoskeletal System
- Module F – Force and Motion Relationships
- Module G – Linear Momentum and Kinetic Energy
- Chapter 9 – Observing and Analyzing Performance
- Module H – Torque and Motion Relationships

**February 12 – Test No. 2**

### PART THREE – February 14 – March 19

- Module I – Angular Momentum
- Module J – Throwlike and Pushlike Movement Patterns
- Chapter 10 – Performance Analysis of Pushlike Movements
- Chapter 11 – Performance Analysis of Throwlike Movements
- Chapter 12 – Analysis of Projectile-Related Activities

**March 19 – Test No. 3**

### PART FOUR – March 21 – April 11

- Module K – Fluid Forces
- Chapter 13 – Applications of Aerodynamics in Sport
- Chapter 14 – Applications of Hydrodynamics in Aquatics
- Chapter 15 – Analysis of Activities in Which the Body Rotates Free of Support
- Chapter 16 – Analysis of Activities in Which the Body Rotates While Supported

**April 11 – Test No. 4**