

DEPARTMENT OF PHYSICAL EDUCATION, ATHLETICS & KINESIOLOGY
PE 2060 - BIOMECHANICS
COURSE OUTLINE - WINTER 2000

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

CLASS TIMES: Monday & Wednesday, 11:30 - 12:50 PM.
Lab/Seminar - Thursday, 1:00 - 1:50 PM.

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

COURSE EVALUATION:

Skill analysis projects	30%
Test #1 - Thurs. Jan. 27	15%
Test #2 - Thurs. Feb. 17	15%
Test #3 - Mon. Mar. 20	15%
Test #4 - Wed. Apr. 12	25%
	100%

COURSE CONTENT AND SCHEDULE

PART ONE – January 5 – January 26

- 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 27 – Test No. 1

PART TWO – January 31 – February 16

- 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 17 – Test No. 2

PART THREE – February 28 – March 16

- 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 20 – Test No. 3

PART FOUR – March 22 – April 10

- 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 12 – Test No. 4