UNIVERSITY OF CALGARY
KINESIOLOGY

Course Outline
KNES 263: Quantitative Biomechanics
Winter 2013

Instructor: Tannin Schmidt, PhD, PEng
Phone: 220-7028
Email: tschmidt@ucalgary.ca
Office: KNB 426
Office Hours: Wednesday 13:00 - 15:00

Room: KNB 132
Days: Monday, Wednesday, Friday
Time: 10:00 - 10:50
Course Website: "Blackboard"

Course Description:
Basic principles of force system analysis, impulse-momentum, work-energy and particle kinematics applied to biological structures, including extensive mathematical analyses.

Course Objectives:
To understand the following basic principles and how they relate to biological structures:
Newton's Laws, Particle Kinematics and Kinetics,
Work-Energy Principle, Impulse-Momentum

Assistants:

Michael Samsom	KNB 211	210-8962	michael.samsom@gmail.com
Jennifer Baltich	KNB 218	220-5142	jbaltich@kin.ucalgary.ca
Jordyn Vienneau	KNB 223	210-6048	jvienneau@kin.ucalgary.ca

Tutorial Location:

Tutorial 1: KNA 160	Tuesday, 08:00 - 08:50 (Batlich)
Tutorial 2: KNA 160	Tuesday, 10:00 - 10:50 (Samsom)
Tutorial 3: KNB 129	Tuesday, 13:00 – 13:50 (Vienneau)
Tutorial 4: KNA 160	Thursday, 08:00 - 08:50 (Batlich)
Tutorial 5: KNA 160	Thursday, 10:00 - 10:50 (Samsom)
Tutorial 6: KNB 128	Thursday, 13:00 – 13:50 (Vienneau)

Optional Texts:
Schaums Outlines - Physics for Pre-med, Biology, and Allied Health Students.
Engineering Mechanics Statics and Dynamics - J.L. Meriam and L.G. Kraige.

Contacting the Instructor:
Students requiring assistance are encouraged to speak with their instructor during class or office hours. Should you wish to meet with the instructor outside of office hours, please phone or email the instructor to make an appointment.

Email, while commonly used, does limit the effectiveness of communications and may not be the best way for instructors to answer student questions. Therefore, the instructor may request a telephone call or personal meeting. Your instructor will inform you as to his/her expectations about emails.

Grading Scale:

Grade	Percent	Grade Point Value	Description
A+	95.0 - 100	4.00	Outstanding
A	90.0 – 94.9	4.00	Excellent - superior performance, showing comprehensive understanding of subject matter.
A-	86.0 – 89.9	3.70	
B+	82.0 – 85.9	3.30	
B	78.0 – 81.9	3.00	Good-clearly above average performance with knowledge of subject matter generally complete.
B-	74.0 – 77.9	2.70	
C+	70.0 – 73.9	2.30	
C	66.0 – 69.9	2.00	Satisfactory – basic understanding of the subject matter. Grade point average below 2.00 is not sufficient for promotion.
C-	62.0 – 65.9	1.70	
D+	58.0 – 61.9	1.30	
D	54.0 – 57.9	1.00	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
F	<54.0	0	Fail – unsatisfactory performance or failure to meet course requirements.

Evaluation of Course Content:

Quizzes (10%): In class quizzes, best four will be counted.
Assignments (20%): Weekly assignments of several problems.
Midterm Exam (30%): One midterm exam.
Final Exam (40%): A final two hour exam.

Late Policy:

Assignments are posted on Fridays and are due the following Friday by 12:00pm in the drop boxes (associated with TA's last name) located in the Kinesiology atrium.
Late assignments are accepted when the final answers, together with the reason of the delay, are sent to the TA by email before 12:00pm on the due date and the completed assignment is handed in before start of class the next class.
Late assignment in the absence of the email described above will be accepted before the next class with 50% of marks deducted.
Late assignments will not be accepted after the beginning of the next class.

Final Examination:

Final Exam to be scheduled by the registrar. Closed book, calculators are permitted.

Additional Course Information:

Lecture slides will be posted weekly on Blackboard.

Course Content:

Week	Date	Topic (Approximate Schedule)
1	Jan. 9	Introduction
		Biomechanics Definition
2	Jan. 14	Vector Algebra
		Vector Algebra
		Vector Algebra
3	Jan. 21	Newton's Laws
		Newton's Laws
		Moment of Force
4	Jan. 28	Moment of Force
		Free Body Diagrams
		Free Body Diagrams
5	Feb. 4	Free Body Diagrams
		Force System Analysis
		Force System Analysis
6	Feb. 11	Force System Analysis
		Force System Analysis
		Force System Analysis
7	Feb. 18	Reading Week
		Reading Week
		Reading Week
8	Feb. 25	Review
		Midterm Exam – Part 1
		Midterm Exam – Part 2
9	Mar. 4	Particle Kinematics
		Particle Kinematics
		Particle Kinematics
10	Mar. 11	Particle Kinematics
		Particle Kinematics
		Particle Kinematics
11	Mar. 18	Particle Kinematics
		Work/Energy
		Work/Energy
12	Mar. 25	Work/Energy
		Work/Energy
		Good Friday
13	Apr. 1	Work/Energy
		Work/Energy
		Impulse/Momentum
14	Apr. 8	Impulse/Momentum
		Impulse/Momentum
		Impulse/Momentum
15	Apr 15	Review

Supplementary Course Information

In accordance with the University of Calgary Calendar

Academic Accommodation Awareness Information:	It is the student's responsibility to request academic accommodation. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the commencement of this course. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation.
Plagiarism/Cheating/ Other Academic Misconduct: (see Calendar)	A single offence of cheating, plagiarism, or other academic misconduct is a serious act that will not be tolerated in the Faculty of Kinesiology. Penalties for such acts will be determined by the Dean and may result in a failing grade, probation, suspension, or expulsion. Any student who is uncertain if an action falls into this category should consult the instructor and/or the Calendar.
Midterm Exam Policy:	The Faculty of Kinesiology policy is that all students are expected to write midterm exams on the dates listed on the course outline. Special accommodation may be granted by the instructor in **exceptional circumstances only** which include illness, participation in athletic events (varsity, national or international), domestic affliction, and religious conviction. It is the student's responsibility to supply proper documentation and/or notification **prior** to the originally scheduled midterm to support their circumstance. Personal travel plans and arrangements are **not** valid reasons for requesting a special accommodation for a midterm exam. Failure to comply with this policy will result in a grade of zero for the midterm and possible failure in the course.
FOIP Policy:	Please note that the University is under the jurisdiction of the provincial Freedom of Information and Protection of Privacy (FOIP) Act. Please refer to the website for details: http://www.ucalgary.ca/secretariat/privacy
Internet and Electronic Communication Device Information:	Any surfing of the Internet during lectures that is not directly related to the class discussion is distracting and strictly forbidden. Additionally, the use of any electronic devices (e.g., cellular phones, Blackberrys) for e-mailing, texting, etc. is strictly prohibited. Please turn OFF your phone before the beginning of each lecture. Instructors have the authority, at the discretion of the dean of their faculty, to require that specific course assignments, term papers and academic exercises be submitted in an electronic format. Instructors cannot require that multiple copies of an assignment be submitted.
Emergency Evacuation/Assembly Points:	For classes in the Kinesiology buildings Primary assembly point is the MacEwan Student Centre - North Courtyard and the Alternate assembly point is University Theatres Lobby
Safewalk Information:	Safewalk volunteers walk people safely to their destination on campus (including Health Sciences, Children's Hospital, McMahon Stadium, and University LRT station). This service is free and available to students, staff and campus visitors. Call 403-220-5333 (24 hours a day/7 days a week/365 days a year).
Student's Union:	The Kinesiology Representative is Calindy Ramsden - E-mail: kinesrep@su.ucalgary.ca.