

KINE 3050.002 – Biomechanics – Spring 2014

COURSE SYLLABUS

Instructor:	Anthony A. Duplanty, M.S.
Office Location:	PEB 108-B
Office hours:	Th 8.30-9.20 AM By appointment (preferred)
Contact Information:	(940) 565-4423 anthony.duplanty@unt.edu Please include <u>KINE 3050</u> in the title of all emails
Teaching assistant	TBA
Tutor/peer mentors	Information provided in Class
Tutoring time/location:	TBA
Other tutoring resources:	UNT writing center: http://www.unt.edu/writinglab/ UNT Learning Center: http://learningcenter.unt.edu/tutoring
Email response policy:	I will attempt to answer all emails within 24 hours on Mon-Fri. Students must use their UNT e-mail for any sensitive information – I will not respond with specific student information to e-mails originating from other accounts.
Online:	<u>This class has a section on UNT's Blackboard. USE IT!!!</u>
Lecture Schedule:	Thursdays: 9:30AM-10.50 AM (please be on time and do not leave early without prior approval from the instructor)
Lecture Location:	PEB 216
Required Textbook:	McGinnis, PM. Biomechanics of Sport and Exercise, 3 rd ed., 2013.
Additional Resources:	http://www.mhhe.com/hall5e
Course Description:	<i>Biomechanics</i> is an introductory course designed to educate kinesiology students on the basic principles of biomechanics and their applications to human movement. This course will involve the analysis of efficient movement through a study of mechanical and anatomical principles and their application to human movement.
Prerequisite(s):	BIOL 2301/2311 (human anatomy), or consent of instructor. <u>Basic mathematics skills (algebra, geometry) are needed to successfully complete this course.</u>
Special accommodations:	Please contact me as soon as possible if you need special accommodations for classes, assignments, or exams. You must register with the UNT Office of Disabilities accommodation before any special accommodation can be made.

**Please keep all cellular devices turned off during class, that also means no-reading or
sending text messages etc. They are distracting to the instructor and your fellow students.**
Please see me if you must keep your phone on during class due to potential medical emergencies.

Course Objectives:**Understand the mechanical aspects of human motion:**

1. Use physical laws of motion to quantitatively and qualitatively analyze human motion and performance.
2. Use physical laws of motion to solve problems of human motion.
3. Gain understanding of the relationship between mechanical properties and anatomical functions.
4. Understand how biomechanical principles can be applied to examine human activities such as sport and orthopedic rehabilitation.

Course Activities**Examine mechanical properties and how these affect human motion**

- Relate specific physical parameters to human motion, e.g.: force, velocity, acceleration, momentum, torque etc. A specific example: Understanding how muscle force vectors translate into torque generation at specific joints to effect motion (linear & angular).
- Examine biomechanical principles by solving quantitative questions regarding motion. Throughout the semester we will apply mathematics to the physical parameters of specific human motions to achieve an overall understanding of biomechanics.
- Examine how specific anatomical structures affect movement.
- Relate all of the above to everyday activities, especially sport and orthopedic rehabilitation related activity.

As a result, this course will necessarily draw upon a variety of disciplines including: Anatomy, Physiology, Mathematics, and Physics.

Tentative Course Schedule:

Week (date)	Topics and Exams	Reading etc.	Assignments (due dates)
1 (1/16)	Class outline/syllabus Introduction	Syllabus, Intro Appendix A	
	External Biomechanics		
2 (1/23)	Forces	Ch.1	-Online Syllabus Quiz (Th. 1/23) -Lab 1 due (Th. 1/23)
3 (1/30)	Linear Kinematics	Ch.2	
4 (2/6)	Linear Kinetics	Ch. 3	-Lab 2 due (Th. 2/6)
5 (2/13)	Exam Review Exam 1 (Tuesday 2/18)		
6 (2/20)	Work, Power, Energy	Ch. 4	-Practical experience liability and placement forms due (Th. 2/20)
7 (2/27)	Torques & Moments	Ch. 5	
8 (3/6)	NO CLASS	Ch. 6	
(3/13)	Spring Break – no class		
9 (3/20)	Angular Kinematics	Ch. 7	
10 (3/27)	Angular Kinetics Exam 2 (Tuesday 4/1)		
	Internal Biomechanics		
11 (4/3)	Tissue Stress Joints & Bone	Ch. 9, 10	
12-13 (4/10 & 4/17)	Ligament & Tendon		
14-15 (4/24 & 5/1)	Muscle Exam Review	Ch. 11,12	-Practical experience paper due (Tue. 4/24) -SETE -Class Survey (Th. 5/1)
16	Exam 3 <u>(5/8; 8:00 AM -9:30AM –</u> <u>Sage Hall C330)</u>		-SETE verification due at final exam

Grading:

Item:

Test 1:

Test 2:

Test 3:

Learning modules (13 @ 1 point):

Laboratory assignments (5 points each for 2 assignments):

Syllabus quiz:

Total points available

Maximal score:

50 points

50 points

50 points

13 points

10 points

2 points

175 points

Final Grade (points)

A ≥ 157

B 140-156

C 122-139

D 105-121

F 104 and below

Optional assignments for extra credit:

Practical biomechanics experience

10 points

Class survey
SETE

1 point
1 point

All grading for this course will be criterion based (i.e. your grade will not depend on the score of other students). There are optional assignments offered, **no additional credit will be offered; please do not ask for any.**

Online learning modules:

To obtain points for completing a learning module you must complete it ***before*** the scheduled lecture to which the module applies.

Attendance:

Attendance online and in-class is mandatory; you are expected to attend all classes. From prior semesters results it is clear that it is very difficult to do well or even pass this class without a good/high attendance rate. If you have more than two in-class absences, **you will lose five points per additional absence.** If you leave early or arrive late without prior permission from the instructor you will be considered absent for that day. If you are sick, you must provide me with a physician's note with time and date stating that you are not capable of attending class on that date during class time (9.30-10.50AM).

DO NOT e-mail me asking what your grade is!!! All your points are listed on Blackboard as soon as we have them so you can calculate it yourself. DO NOT email me asking for any extra points you have not earned or if you can earn extra points.

Optional:

Practical biomechanics experience/observation:

The objective for this assignment is to provide you with an experience in practical or applied aspects of biomechanics. You are expected to complete 5 hours of involvement/observation for this assignment. You are responsible for locating and setting up the appointment(s) with an appropriate agency/location for this experience, as this is an important component of the assignment. At the end of your experience you are to write a 2-3 page summary paper on your practical experience (see grading rubric for specifics on what to include). A step-by-step guide (including forms and due dates) and the grading rubric for this assignment are posted on Blackboard. **Writing help:** The University Writing Center is a good resource for help with the writing portion of this assignment; however, the work (ideas) must be yours. The Center is located in the Auditorium Building, Room 105. Call 565-2563 to make an appointment. **All forms and papers must be uploaded on blackboard by the due dates to receive points.** Many UNT computer labs have scanner you can use if needed.

Surveys: You must print confirmation for completion of the SETE and bring it to the final to receive credit for that survey. In addition there will be a survey by me on different aspects of this course.

Other expectations and suggestions:

Lecture/reading material for exams:

Exams will cover the material specified in the course calendar unless otherwise delineated by the instructor. Although the exams are not designed to be cumulative, biomechanics is cumulative by nature. Thus, you will be required to use some of the skills you learned in earlier sections during later exams.

Reading Assignments

Please note: The reading assignments listed in this syllabus are intended to *supplement* the lecture materials. Some of the material in the text will **not** be covered in lecture but may be included on the exams. By the same token, all of the information given in lecture will **not** be found in the text, but may also be included on the exams. **I request and recommend** that you read the assigned sections in the text **before** the scheduled lectures to which they apply. Due to the nature of the material in this class, it is very difficult to adequately catch up right before exams.

Examination Policies

1. Three exams will be scheduled during the semester. Each exam will consist of objective items (true-false, multiple choice, matching etc.). The exams will not be cumulative. The third exam will be scheduled during our final exam time.
2. Students will **not** be allowed to leave the room during exams and quizzes. Please attend to any personal needs before the exam.
3. Quizzes are administrated at the beginning of class on assigned dates. If you are late you will not be granted additional time to complete the quiz. If you arrive after the quiz has been completed, you will not be allowed to complete the quiz (with the exceptions stated in #4 below).
4. Make-up exams and quizzes will be considered **only** for exceptional circumstances or university approved absence. (Note: “I overslept”, “I’m tired”, “I’m not prepared”, etc. are **not** exceptional circumstances). Any student who fails to contact the instructor *prior* to any missed exam or quizzes might **not** be allowed to make-up the exam. It is your responsibility to contact the instructor in case of an emergency
5. Absence for medical reasons requires *written dated* verification by a physician.
6. Exams and quizzes will **not** be rescheduled based on a student's personal work/school schedule. Please plan ahead.
7. Questions/concerns regarding grading for any exam, quiz, or assignment must be resolved with the instructor within **one week** of the date graded exams are returned to the student.
8. All exams and quizzes are non-circulating.
9. Make-up exams will only be granted in cases of extreme circumstances.
10. During exams and quizzes, hats must be removed or turned backwards and phones/pagers must be turned off and stored out of sight.
11. In the event that a student arrives late to an exam or quiz and one or more students have already completed the exam, the late student will not be allowed to take the exam and will receive a 0 for that exam.
12. Students must bring #2 pencils and a calculator to each exam and quiz. **No cell phone, PDA etc. calculators will be allowed.** I will not have any for you to borrow and you may not share calculators with others in the class.

Other important information

Feedback & exam surveys: I will be asking you for feedback regarding this class. Please use this opportunity as it will help me to improve this class for you and future students. Please be as specific as possible in your comments. In addition, I encourage you to come by my office if you have questions, suggestions, or concerns regarding this class.

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.

Classroom Behavior: Every student is expected to conduct themselves in a manner appropriate for an Institution of Higher Learning. Disruptive or degrading behavior will not be tolerated. Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at www.deanofstudents.unt.edu

American with Disabilities Compliance: The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at [940.565.4323](tel:940.565.4323).

Academic Dishonesty: Cheating will not be tolerated in the class. You are not to receive information from another student or give information to another student during a test or quiz. You are to use only your memory. Students caught cheating during an examination or quiz will be charged under the University's Code of Student Conduct. Among other punishments, students found guilty run the risk of having their score changed to a zero, receiving a grade of F for the course, and/or dismissal from the University. Academic dishonesty includes cheating, plagiarism, fabrication, and facilitating academic dishonesty. Cheating refers to collaborating on individual assignments and using unauthorized materials. Plagiarism refers to presenting ideas, words, or statements of another person without giving credit to that person. If you have questions about cheating or plagiarism, please see me.

Family Educational Rights and Privacy Act (FERPA) Information: Students have the right to expect their grades will be kept confidential. There are a few things, because of the size and/or nature of this class, the instructor must advise you of regarding collection and distribution of test results, quiz scores, homework assignments, roll sheets, projects, etc. During this class it may be necessary for you to pass your assignments forward to the instructor or it may be necessary for the instructor to call your name and then return your completed assignment to you by passing it across the room. The instructor, under the reasonable assumption guidelines, assumes students are collecting only their own materials. Every attempt will be made to keep your information confidential. Neither your course grades nor grades for any assignment will be posted in a way that could result in your being identified by other students or faculty members.

UNT E-mail and Blackboard. All students should activate and regularly check their UNT-E-mail account and the Blackboard site for this class. A lot of class information will be distributed ONLY via these outlets. **DO NOT** send emails via blackboard as the instructor does not check emails on Blackboard.

The instructor reserves the right to alter any portion of this syllabus.