

EML 5215 – ANALYTICAL DYNAMICS FALL 2015

Syllabus (a.k.a. our contract for the semester)

COURSE INSTRUCTOR: Dr. Riccardo Bevilacqua, MAE-A 308, bevilr@ufl.edu, 352-392-6230. Office hours: Mondays and Wednesdays, 4:10pm-5:40pm, starting August 31st, 2015, ending December 9th, 2015. (**AFTER NOV 20th contact me via email as I will travel**)

CLASS WEBSITE: <http://www.riccardobevilacqua.com/teaching.html>

CLASS MEETS: M, W, F, period 8 (3:00pm-3:50pm), NEB 201 – the first meeting will be on August 31st, NO CLASSES the first week of the semester. **The first 3 missed lectures will be posted as videos from Spring 15's EML5215 offering – students will be expected to watch them by Aug. 31st.** The same approach will be used for any potential missed meetings due to instructor professional travel or other conflicts.

TEACHING ASSISTANT: Mr. Patrick Kelly (pkelly89@ufl.edu), MAE-A 211, Office hours: Tuesdays 1-4, starting August 31st, 2015, ending December 9th, 2015.

COURSE DESCRIPTION: Kinematics and kinetics of particles, systems of particles, and rigid bodies. Analytical dynamics in Lagrangian form.

TEXTBOOK: Rao, A. V., *Dynamics of Particles and Rigid Bodies: A Systematic Approach*, Cambridge University Press, 2006.

COURSE OBJECTIVES: The objective of this course is to provide a thorough and systematic introduction to the subject of dynamics of particles and rigid bodies using a Newton-Euler approach. All development is done in a coordinate-free manner and will be applied to several examples.

INDICATIVE CALENDAR BY MAIN TOPICS:

Kinematics - 3 Weeks

Kinetics of Particles - 3 Weeks

Kinetics of a System of Particles - 2 Weeks

(Midterm survey provided to students)

Kinetics of Rigid Bodies - 3 Weeks

Analytical Dynamics - 4 Weeks

HOMEWORK: This class has no homework. Graduate students are expected to work through the problems in the assigned textbook and ask for help as needed, during office hours. Examples will be often solved in class. Solutions to selected problems from the textbook will be posted. I strongly suggest you try to solve the problems first, then check the posted solution, and then come with questions if anything is not clear. Exams from previous offering are on the instructor's webpage along with their solutions.

In solving problems from the textbook, student can skip the following:

chapter 2: YOU CAN SKIP # 8, 13, 17, 23, 26

chapter 3: YOU CAN SKIP # 6, 8, 9, 17, 20,

chapter 4: YOU CAN SKIP # 2, 3, 5, 6, 7, 11, 14, 18, 19, 20, 24

chapter 5: YOU CAN SKIP # 4, 13, 14, 18

chapter 6: YOU CAN SKIP # 1, 2, 3, 4, 6, 10

EXAMS: two take-home (24hrs) exams will be given. There is no final exam. **EXAM 1 October 16th, 2015, released 5pm. EXAM 2 December 8th, 2015, released 5pm. Grading is 50% per exam. Bonus 5% will be given to those taking the time to complete the optional midterm survey (released October 21st) within 2 days.** The additional points will obviously make no difference for those with 100/100, but will be counted for all other cases.

No questions or collaborations are allowed during exams. The instructor will be on total radio silence during the exams.

Exams and survey will be released via email by the instructor and collected via email (scans) by the TA.

GRADING POLICY: The grading scale is as follows:

A: 94 to 100

A-: 90 to 93.99

B+: 85 to 89.99

B: 80 to 84.99

B-: 75 to 79.99

C+: 70 to 74.99

C: 65 to 69.99

C-: 60 to 64.99

D+: 55 to 59.99

D: 50 to 54.99

D-: 45 to 49.99

E: Less Than 45

CLASS ATTENDANCE AND MAKE UP POLICY: The general rule is no make-up exams and no rescheduling of exams to other times.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

The students remain completely responsible for timely communications with the instructor.

STUDENTS WITH DISABILITIES: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester. In other words: immediately at the beginning.

CHEATING POLICY: absolutely zero tolerance. Your examinations must be completed completely independently. If anyone is caught having worked together on an exam or having used an unauthorized source, the penalty is an automatic failure of the course.

Cheating breaks the mutual trust between instructor and student. Cheating will invariably result in an automatic “E” grade and the incident will be reported to the University.

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Students should also familiarize with the Code of Ethics for Engineers: <http://www.nspe.org/resources/ethics/code-ethics>

ONLINE STUDENTS COURSE EVALUATION: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

The instructor will also provide a midterm evaluation form to the students, to monitor the development of the class, and make necessary adjustments, when possible. I value your input, and that is why I am giving you an incentive to complete this optional survey at mid-semester. See also grading policy for points assigned to this survey.

CLASS DEMEANOR EXPECTED BY THE INSTRUCTOR: I have little tolerance for students who are repeatedly late to class, cell phone ringing, text messages beeps, and any behavior that may be distracting both students and instructor. Repeated offenders will be asked to leave the classroom, and the lecture will not resume until they comply. If they do not comply, the lecture will be given for granted and the instructor will move on.

Also, I will not be eating while teaching (obviously!), and I expect you not to eat in class.

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the **University Police Department:** 392-1111 or 9-1-1 for emergencies