Syllabus for PHYS 301
Classical Mechanics – Spring 2017

Class Times: Mondays, Wednesdays, and Fridays, 11:00-11:50 AM, JC Long 219

Instructor Dr. Mike Larsen
Office Phone: 843-953-2128
Email address: LarsenML@cofc.edu
Office Hours: Mondays, Wednesdays, and Fridays from 7-8 AM and 10-11 AM, as well as Mondays and Fridays from 8-9 AM. If you need help outside of "official office hours", try to find me [my office door has a Dr. Larsen finder that can sometimes be helpful]; most often I'll happily drop what I'm doing to help you).
Office Locations: JC Long 217

Prerequisite or Corequisite: (PHYS 112 or HONS 158) and (MATH 323 or PHYS 272) or Permission of Instructor
Course Webpage: http://larsenml.people.cofc.edu/phys301_spr17.html
(Please see course page for supplementary information).

Textbook: Taylor, John R. (2005). *Classical Mechanics.* University Science Books. ISBN: 978-1891389221.

Attendance Policy
It is expected that you will attend class. I will. You are responsible for any material missed in class, including announcements about homework/test date changes, etc.

Classroom Policies
Please treat your classmates and professor with the respect due to them as fellow adults and human beings. Your professor always reserves the right to dismiss you from the room.
Please do not text message, browse the internet, check email, or engage in other non-class-related communications during class.
Cell phones – Few things irritate your professor as much as having his lecture interrupted by a cell phone ring. It totally makes him lose his train of thought. Please be considerate and turn it on vibrate during lectures. Also, all cell phones must be turned off (NOT JUST TO VIBRATE) during all exams.

Honor Code / Code of Conduct
It is expected that you will adhere to the university's honor code and student code of conduct, as can be found in your student handbook.

Final Exam Time Period: Friday, April 28th, 12-3 PM.

Tentative Midterm Test Dates (Subject to Change) It is pretty much impossible to give you an effective in-class exam for this course in the 50 minute window that we have for the class. Fitting an exam in that time window would require me to either ask you surface-level questions only, or give you so few questions that forgetting one thing might spell doom for your semester grade. Take-home exams are fraught with their own issues, so we will be conducting Friday evening exams for this course. I'm giving you the dates now so that you can let me know *immediately* if you have any conflicts. (If you do have a prior conflict with Friday evening exams, come talk to me NOW!!! We'll be able to arrange something).

The department chair is aware of our intention of doing these evening exams and we have ensured that no other Physics classes conflict with this exam protocol. Friday evening exams will start at 6 PM and you will be given 3 hours to complete them – even though the exams should only take about an hour and a half to complete (You are given this 3 hour window to try and ensure that you won't feel undue time pressure, but *they are not 3 hour exams*!).

The midterm exam dates are planned to be:

Friday, February 17th (starting at 6 PM)
Friday, March 24th (starting at 6 PM)
Friday, April 21st (starting at 6 PM)

And, of course, your comprehensive final will be a timed 3 hour exam on Friday, April 28th, from noon-3 pm.

Students with Disabilities

The College will make reasonable accommodations for persons with documented disabilities. Students should apply at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying your professor as soon as possible and subsequently contacting your professor again at least one week before any specific accommodation is needed.

Grading

Grades will be based on three components:

- Performance on exams (17.5% each) (combines for 52.5% of the class grade)
- Performance on regularly assigned homework (30%)
- Performance on the comprehensive final examination (17.5%) (can count for up to 35%; see below).

Your instructor makes every effort to return homework and exams as soon as possible after receiving them. Because of this, you will often receive homework back the class after it was due and you may go through some of the problems in class. Since it would be unfair to accept work from students who had the advantage of hearing the correct answers in class, late work will be docked 50% if turned in between the original due date and the next class, and will not be accepted for credit more than one class after it was originally due. Your lowest homework grade will be dropped.

There will be no makeup exams for any reason. If you have a conflict with a scheduled exam, you may work with your professor to try to schedule to take the exam **before** *the scheduled exam time (but not after).* If you have a known conflict – due to a sporting event, religious observance, interview, or other important event – it is your responsibility to use office hours to discuss options with the instructor *well in advance of the exam date* to try to work out a mutually acceptable solution.

Following policy, the final exam is required. There is a little extra wrinkle regarding the final, however; the (comprehensive) final will count for at least 17.5% of your grade, but may count for up to 35%. I will allow you to replace your lowest exam score with your final exam grade, if your final exam grade is better than your lowest exam score. Because you have the ability to drop this lowest exam score, *no makeups for missed exams will be given!!!* The "0" score you record on the missed exam will be replaced by your final exam score. That does mean, however, that your "safety net" is gone; if you do poorly on one of the other exams, unfortunately you will not be able to erase that score. Grading Scale: The formal numerical scale might move around a little bit depending on the class' performance, but the final grading scale will be *no more stringent* than:

A	$\geq$91	B+	89	B-	80	C	71-78	D	60 - 69
A-	90	B	81-88	C+	79	C-	70	F	$<$60

Course Goal
This course is designed to aid students in problem solving associated with Newtonian, Lagrangian, and Hamiltonian mechanics of particles and rigid bodies.

Learning Objectives
This course endeavors to aid the motivated student in the following tasks:

- Using the concepts of momentum, angular momentum and energy in order to infer the equations of motion of classical systems.
- Develop a working understanding of Newtonian, Lagrangian, and Hamiltonian mechanics.
- Learn how to describe the statics, dynamics, and kinematics of non-relativistic systems.

Learning Outcomes
At the end of this course, successful students will be able to:

- Write down the equations of motion for various classical systems.
- Use Lagrange's and/or Hamilton's equations to describe classical systems.
- Solve (successfully) standard problems that fall within the realm of non-relativistic classical mechanics.