INTERMEDIATE MECHANICS (PHY 321) SYLLABUS, SPRING 2023

Course overview: We will study classical mechanics at the upper undergraduate level. Prerequisites for this course are PHYS 224 (Introductory Physics III), MATH 225 (Ordinary Differential Equations) and MATH 221 (Linear Algebra). <u>The lectures and the exams will be held face to face, except otherwise noticed.</u>

Topics: Newton's Laws of Motion, Projectiles and Charged Particles, Momentum and Angular Momentum, Energy, Oscillations, Calculus of Variations, Lagrange's Equations, Two-Body Central Force Problems, Mechanics in Non-inertial Frames, Motion of Rigid Bodies, Coupled Oscillators and Normal Modes.

Resources. The class will be based on the required book: "*Classical Mechanics*" by John R. Taylor, University Science Books, ISBN-10: 189138922X, ISBN-13: 978-1891389221. The class blackboard page will be the announcement board of the course, where lecture notes and homework as well as announcements regarding the class and the exams will be posted. You are expected to be familiar with its content.

Instructor: Markos Georganopoulos. E-mail: <u>georgano@umbc.edu</u>, tel: 1-410-455-8149 (my cell, 202 2863618 is more useful).

Lectures, time, and place: Monday, Wednesday, Friday 2:00-2:50 PM, PHYS 201.

Office Hours: Monday, Wednesday, Friday 3:00-3:50 PM at my office, PHYS 409.

Exams and Grading

Final Exam (40%): An exam at the end of the course on all the course material.

Mid Term Exam (30%): It will cover the material from the beginning of the class up to the lecture before the mid term. It is expected to take place on 3/29/2023.

Homework (30%): Homework questions will provide good practice for the types of question likely to be posed in the mid term and final exams. A homework will be assigned every week. Students are expected to solve all the problems of the homework but are not required to turn them in. In the beginning of the class on the due-day of the homework, students will be given 10 min to <u>clearly</u> reproduce the solution of one the homework problems selected by me.

Grading Scheme: A: 85-100, B: 70-84, C: 60-69, D: 50-59, F: Below 50

Academic Integrity: By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of

honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory.

IMPORTANT NOTE: Clear handwriting, proper English grammar and syntax, as well as logical flow of your arguments and no missing steps are required in all exams and homeworks.

Please let me know in advance if you cannot participate in any of the exams due to religious or personal or health reasons.