Physics 5403: Computational Physics – Fall Semester 2022

Instructor:	Thomas Vojta Office: 103 Physics, phone: 341-4793, email: vojtat@mst.edu
Office hours:	I am always available during the Lab hours Tuesday 3:30 pm to 6pm. You can also email for an appointment or just drop in any time.
Course home page:	http://www.mst.edu/∼vojtat/class_351/class_351.html
Class time:	9:00 am – 9:50 am MWF, Room 127 Physics Building
Lab time:	3:30 pm – 6:00 pm Tuesday, Room 128 (CLC) Physics Building
Prerequisites:	Math 3304, Phys 2401, some programming experience
Recommended texts:	"An Introduction to Computational Physics" by Tao Pang, Cambridge University Press "Computational Physics" by Nicholas Giordano and Hisao Nakanishi, Prentice Hall
Further reading:	"Computational Physics" by Landau and Paez "Numerical Methods for Physics" by Garcia
Projects:	The course is project based. In class, we will consider a certain type of physics problem and discuss how to solve it using computational methods. Based on these discussions, I will assign projects in which you are asked to solve a specific problem. You will have to (i) analyze the problem, (ii) select an algorithm, (iii) write a computer program, (iv) run the program, (v) visualize the data numerical data, and (vi) extract an answer to the physics question from the data. You will work on these projects during the Lab time and at home.
Project reports:	For each project you will submit a short report describing the physics problem, your way of attacking it, and the results you obtained. Each report will be worth 100 pts. A total of 8 projects will be assigned. Your lowest score will be dropped. When working on the projects and reports, discussions among colleagues are allowed and encouraged. However, the reports you hand in should be based on your efforts (i.e., your code and your simulation runs) and not that of a group. You should document any reference material which you directly use.
Final grade:	Course grade will be based on the total number of points earned expressed as a percentage of the total number of points available (700). The relation between performance and grade will be the standard one: $A \geq 90\% > B \geq 80\% > C \geq 70\%$. The boundaries between the grades may be revised downwards (i.e., to the students benefit) depending upon the judgement of the instructor, but will not be revised upwards.

Accessibility and Accommodations: It is the university's goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please contact Student Disability Services at (573) 341-6655, dss@mst.edu, visit https://saat.mst.edu/ for information, or go to mineraccess.mst.edu to initiate the accommodation process.

Academic Dishonesty: You should behave as responsible scholars and scientists. Academic dishonesty such as plagiarism, cheating, or sabotage is unethical and unacceptable and will be dealt with accordingly. For more detail, see the Student Academic Regulations which are available on the web at http://registrar.mst.edu/academicregs.

Title IX: The title IX policies, resources and reporting options are available online at http://equity.mst.edu.

Emergency exits: Please familiarize yourself with the emergency exists shown on the egress maps posted on-line at: http://designconstruction.mst.edu/floorplan/.

Complaints: It is hoped that any problems can be resolved through discussions between student and instructor. If there are any complaints that cannot be resolved you may contact Dr. Shannon Fogg, Associate Dean for Academic Affairs (sfogg@mst.edu).