Math 677 – Ordinary Differential Equations – Spring 2021

Dates/Times M 4:30-7:10

Location Buchanan Hall D005

Textbook Differential Dynamical Systems. James Meiss.

Instructor Matt Holzer, Exploratory Hall 4458

Email mholzer@gmu.edu

Office Hours , T 10:30-11:30 , F 11:00-12:00 (others by appointment)

Course Description This is a core course covering the mathematical theory of ordinary differential equations. Topics will include linear systems of equations, local theory for nonlinear equations, some topics in global theory of nonlinear equations, planar systems, bifurcations and Hamiltonian systems (if time provides).

Additional Resources You may want to consult the following textbooks in addition to the assigned one. *Differential Equations and Dynamical System* by Lawrence Perko. *Nonlinear Dynamics and Chaos* by Steven Strogatz.

Attendance You have the option of attending class in person or attending virtually (synchronous or asynchronous). If you wish to attend asynchronously then you should make plans to be available to take the two midterm exams.

COVID Protocols I am giving the option of attending class in person because I feel that it is a superior way to learn. You are free to come to class, but it is important to state that it is everyone's joint responsibility to keep each other safe. Please be aware of Mason's Safe Return to Campus policies. Please fill out your daily screening and opt for virtual attendance if you do not feel well.

Weekly homework assignments A homework assignment will be distributed every week. These problems will be due the following week. The homework will be divided into several parts. The first will ask you to review your lecture notes or contain shorter problems typical of what might appear on the preliminary exam. The second will contain more analytical problems. The first part will be graded on a 1/0 scale. The second portion is graded check/rewrite/zero. A check counts as one point. A rewrite is zero, but the problem may be rewritten and resubmitted for full credit. A zero is a zero.

All homework submissions will be done virtually via Blackboard.

Online Resources For most of the questions that I ask this semester, the solution can likely be found online with enough searching, or computer packages can be used to expediate your calculations. I request that you not do either of these things.

Graduate Learning Assistant Jackson Williams will serve as GLA (Graduate Learning Assistant) this semester with the primary goal of helping students prepare for the prelminary exam that will occur during finals week.

Important Dates

March 15th: Midterm #1
April 26th: Midterm #2
May 3rd: ODE Prelim 4:30-6:30

Grade Grades will be determined according to the proportion of points earned throughout the semester. Final grades will be given according to the standard breakdown (94 for an A, 90 for an A-, 87 for a B+, etc). I reserve the right to shift these gradelines lower, but they will not be raised. A preliminary exam will be administered during our final exam period, but it **will not be counted towards the final grade.**

Academic Integrity You are bound by the Mason Honor Code and its policies related to Academic Integrity. Violations will be taken seriously.

Disability Services Students may be eligible for accommodations through the Office of Disability Services

Communication All email communication is to take place through your gmu email account.