

Date and Time: M,W,F: 9:10-10:00

Classroom: TODD 211

Course Webpage: Blackboard

Instructor: Nikolaos Voulgarakis

Office: Neill 325

Office Hours: M,W,F: 13:10-14:00 or by appointment

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Webpage: <http://www.math.wsu.edu/faculty/nvoul/index.html>

Textbook: “*Introduction to Applied Nonlinear Dynamical Systems and Chaos,*” by Stephen Wiggins, Springer-Verlag (ISBN: 0387001778, 2th Edition).

Course Outline: Math 512 is a course in ordinary differential equations with an emphasis on dynamical systems theory. The class will deal with stability of equilibrium solutions, invariant manifolds, periodic orbits, index theory, existence and uniqueness of solutions, dependence on initial conditions and parameters, asymptotic behavior, gradient vector fields, Poincare-Bendixson theorem, Poincare map, local bifurcations, averaging. The goal of this course is to lay a solid foundation for students who undertake advanced research/studies in ordinary differential equations and dynamical systems.

Grading:

- Homework (biweekly): 25%
- Exam1: 20%
- Exam2: 20%
- Final Exam (take home): 35%

Academic Integrity is the cornerstone of the university. All assignments are to be done by *you*, not someone else. You are encouraged to work together and to discuss homework assignments by asking questions such as, "How do you do this type of problem again?" or "What is the idea here?" But you should not sit down with someone else's paper in front of you and refer to it to get your work done. Any student who violates the University's standard of conduct related to academic integrity will be referred to the Office of Student Conduct and may fail the assignment and/or the course. You can learn more about academic integrity at <http://www.academicintegrity.wsu.edu/>

WSU Reasonable Accommodations: Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Access Center. All accommodations **MUST** be approved through the Access Center (Washington Bldg, Room 217). Please stop by or call 509-335-3417 to make an appointment with an Access Advisor.

WSU Safety Measures: Washington State University is committed to maintaining a safe environment for its faculty, staff and students. Please visit <http://safetyplan.wsu.edu> and <http://oem.wsu.edu/emergencies> to access the Campus Safety Plan and emergency information. You

MATH 512
3 credits

Syllabus for MATH 512
Ordinary Differential Equations

Fall 2018

should also become familiar with the WSU Alert Site (<http://alert.wsu.edu>) where information about emergencies and other issue affecting WSU will be found.