

Sergei S. Pilyugin

Courses

MAA 4103/5105
Advanced
Calculus 2 E and
PS (Spring 2022)

MAP 6327
Applied
Differential
Equations (Spring
2022)

MAA 4102/5104
Advanced
Calculus 1 E and
PS (Fall 2021)

MHF 3202 Sets
and Logic (Fall
2021)

MAA 4402/5404
Intro to Complex
Variables
(Summer 2021)

Publications

Research

Schedule

Related Links

MAP 6327 Applied Differential Equations (Spring 2022)

MAP 6327 Applied Differential Equations (Section 1223)

Instructor: [Sergei S.](#)

[Pilyugin https://people.clas.ufl.edu/pilyugin/courses/map6327_s2022/](https://people.clas.ufl.edu/pilyugin/courses/map6327_s2022/)

- **Announcements:** The lectures will be delivered live in LIT 0207. Take home midterms and/or homeworks will be posted and collected in canvas.
- **Time and Room:** MWF 3 (9:35 – 10:25 a.m.), LIT 207.
- **Textbook:** Ordinary Differential Equations with Applications (2nd ed.) by C. Chicone, Springer-Verlag New York, 2006 (ISBN 0-387-30769-9).
- **Critical dates:** Jan. 5 (classes begin), Apr. 20 (classes end).
- **Holidays:** Jan. 17 (MLK Day), Mar. 5–12 (Spring break).
- **Office Hours:** MWF4 (10:40-11:30 a.m.) in LIT 458, or by appointment. Please, call me at 352-392-0281 X296 or use e-mail: pilyugin@ufl.edu for communication. For more details, see my [schedule](#).
- **Description and Objectives of the Course:** MAP 6327 covers theory and methods for analyzing linear and nonlinear systems of ordinary differential equations, the concepts of stability and asymptotic behavior of solutions. Weekly schedule: W1-2: Review of calculus in Banach spaces: contraction principle, implicit function theorem; W3-4: General theory of ODEs: existence, uniqueness, and extensibility of solutions, flows, invariant sets and manifolds, variational systems and linearization; W5-6: Qualitative theory: omega limit sets, attractors, stability, phase plane analysis, Poincare-Bendixson theory; W7-8: Linear systems theory: fundamental matrices, linearized stability, Floquet theory, stability of periodic orbits; W9-10: Origins of ODEs: Euler-Lagrange equation, classical physics, coupled pendula (Femi-Ulam-Pasta oscillator), inverted pendulum, Mathieu equation, partial differential equations; W11-12: Hyperbolic theory: stable, unstable, and center manifolds, Grobman-Hartman theorem; W13-14: Continuation of periodic solutions.
- **Grading System:** The grade is determined by the average of the homework scores. The resulting score determines the letter grade according to the following table

CLAS IT

College of Liberal Arts
and Sciences

UF Mathematics

University of Florida

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D
Score	100	92	87	82	73	68	63	58	53	48
	- 93	88	83	74	69	64	59	54	49	40

- Course policies:
- UF Covid-19 policies: For policy updates please refer to the University of Florida list of Covid-19 related FAQ at <https://coronavirus.ufl.edu/faqs/>.
- Closed-book policy: No use of calculators, or books will be allowed during in-class quizzes.
- Grading disputes: Any issues or questions about the grading of exams must be brought to the instructor's attention within one week after the exams are returned to the class.
- Excused absences: In certain circumstances, a student will be able to make up a missed quiz. These circumstances could include medical situations, family emergencies, travel for University activities (eg. band, debating club, etc), and religious observances. In these cases the student must inform the instructor before or within one week after the missed work and **provide written documentation**. All make ups must be taken during the final exam time slot.
- Policy on class attendance: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>
Most students benefit a great deal from attending class regularly. Arriving late and/or leaving early, reading the newspaper, looking at your cell phone, etc. disrupts the class and is rude and unprofessional.
- UF Honor Code: "UF students are bound by The Honor Pledge which states: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TA's in this class."
- Diversity statement: The University of Florida and the Department of Mathematics are committed to diversity and inclusion of all students. We recognize the diversity of backgrounds and learning needs of our students and strive to create a more inclusive and welcoming environment for everyone. We strongly believe that an inclusive learning environment promotes higher academic achievements.
- For students with disabilities: "Students with disabilities requesting

accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.”

- Online evaluations: Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://gatorevals.aa.ufl.edu/>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.
- Contact information for the Counseling and Wellness Center: <https://counseling.ufl.edu/>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.



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