



Sergei S. Pilyugin

Courses for Spring 2017

- MAP 4484/5489
Mathematical Modeling in
Biology



- MAP 6488 Biomathematics
Seminar 2

Publications

Research

Schedule

Related Links

- ▶ CLAS IT
- ▶ College of Liberal Arts and Sciences
- ▶ University of Florida

MAP 6488 Biomathematics Seminar 2

MAP 6488 Biomathematics Seminar 2

 Instructor: Sergei S. Pilyugin http://people.clas.ufl.edu/pilyugin/courses/map6488_s2017/

- **Announcements:** This page is currently under construction. There are no current announcements.
- **Prerequisites:** A working knowledge of ODEs, elementary PDEs, linear algebra and multivariate analysis will be assumed.
- **Time and Room:** MWF 5 (11:45 a.m. – 12:35 p.m.), LIT 305.
- **Final Exam Time and Room:** TBA.
- **Textbook:** H. L. Smith, *Monotone Dynamical Systems: An Introduction to the Theory of Competitive and Cooperative Systems*, Math Surveys and Monographs, Vol. 41, AMS Providence, 1995.
- **Critical dates:** Jan. 4 (classes begin), Apr. 19 (classes end).
- **Holidays:** Jan. 16 (MLK Day), Mar. 4 -Mar. 11 (Spring Break).
- **Office Hours:** MWF4 (10:40 – 11:30 a.m.) in LIT 458, or by appointment. Please, call me at 352-294-2326 or use e-mail: pilyugin@ufl.edu for communication. For more details, see my [schedule](#).
- **Description and Objectives of the Course:** Dynamical systems is a subject that arises in many applications. Typically, any mathematical model describing an evolution process can be cast as a dynamical system (or a flow, if the time is continuous). In this course, a particular subclass of dynamical systems will be considered, namely, those preserving a certain partial order on the state space (a.k.a. monotone dynamical systems). It turns out that monotone dynamical systems are well-behaved in the sense that in many instances their long term (asymptotic) behavior may be restricted to equilibria or periodic orbits hence greatly simplifying the overall analysis. Several examples of monotone dynamical systems will be considered, including those generated by ODEs, DDEs (ODEs with delays), and parabolic PDEs. Specific applications include classical examples from ecology, population dynamics, and biochemical reaction kinetics.

- **Course policies:**
- **Closed-book policy:** No use of calculators, or books will be allowed during any in-class tests/quizzes.
- **Policy related to make-up exams or other work:** There will be no opportunities to make up for work not submitted. However, if a student provides a legitimate excuse well in advance, scores will be prorated. Work with due date should be turned in at the beginning of class on the stated due date. Late work will not be accepted and will be deemed work not submitted.
- **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 in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.
- **University's honesty policy:** 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 (<http://www.dso.ufl.edu/sccr/process/student-conduct-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 TAs in this class.
- **For students with disabilities:** Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.
- **Students' evaluations of the course:** 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://evaluations.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. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.
 - **Disclaimer:** I reserve the right to change the above policies if situations warrant.

Homework problems by section:

