



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

MAA 4102/5104 Advanced Calculus E&PS 1 (Sections 3044/3049)

Instructor: Sergei S. Pilyugin https://people.clas.ufl.edu/pilyugin/courses/maa4102_f2019/

Announcements: Quiz 1 will be given on Aug. 30.

Homeworks: List of HW problems.

Prerequisites: MAC 2313 (Calculus 3).

Time and Room: MWF 5 (11:45 a.m – 12:35 p.m.), LIT 127.

Literature: Witold A. J. Kosmala, *A Friendly Introduction to Analysis*, Pearson, Prentice Hall, Upper Saddle River, NJ 07458.

Critical dates: Aug. 20 classes begin, Dec. 04 classes end. Midterm exams: Sep. 20, Oct.25, Nov. 25. Quizzes will be announced in prior class.

Holidays: Sep. 02 Labor Day, Oct. 04-05 Homecoming, Nov. 11 Veterans Day, Nov. 27-30 Thanksgiving break.

Make ups: Dec. 10, 12:30 — 1:30 pm in LIT 127.

Office Hours: MWF 6 (12:50-1:40 p.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:

What is the difference between the advanced calculus and the calculus courses that you have taken? In the current course, we will revisit the same concepts as before (real numbers, sequences, functions, limits, continuity, differentiation and integration, etc), but we will treat them in a more accurate and rigorous way. So, the main difference is that we have PROOFS here.

Weekly Schedule:

- W1: Proof techniques, mathematical induction;
- W2: Ordered fields and the real number system, basic inequalities;
- W3: Sequences, convergence, finite limits; monotone sequences;
- W4: Cauchy sequences, subsequences;
- W5: Applications of limits, transcendental number e ;

W6: Limits of functions, sided limits;
 W7: Continuity, properties of continuous functions;
 W8: Uniform continuity;
 W9: Applications of continuity, compact sets;
 W10: Derivatives, properties of differentiable functions;
 W11: Mean value theorems;
 W12: Higher-order derivatives, L'Hopital's rule;
 W13: Taylor's theorem and applications;
 W14: Approximation of derivatives, convex functions.

Grading System:

3 midterms (20% each); 5 quizzes (10% each) based on homework assignments, the best 4 count towards the grade. There will be no make-up exams, rather a replacement for any one midterm can be taken at the time scheduled for the final. The resulting score determines the letter grade according to the following table

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

Course policies:

Closed-book policy: No use of calculators, or books will be allowed during in-class tests.

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 exam. 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

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.”

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://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>.

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.

