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Intro Real Analysis I F24

University of Florida
Little Hall 207, MWF5 (11:45–12:35)

Instructor information:

Vincent Vatter

Office: Little Hall 412

Office hours: Monday 7th period (1:55–2:45), Tuesday 9th period (4:05–4:55), and by appointment

Email: vatter@ufl.edu

Text

Spivak's *Calculus*, 4th edition.

Course content, goals, and objectives

In this course, we will revisit familiar calculus concepts such as the real numbers, functions of one variable, limits, continuity, and differentiability. But this time, we'll explore them in a more accurate and rigorous manner, and **prove** the major results along the way.

In addition to mastery of the course content, course objectives include reading, writing, and discovering proofs and constructing proofs and counterexamples in analysis.

Tentative weekly schedule

Week 1: Properties of numbers; inequalities

Weeks 2–3: Number systems; proofs; induction

Weeks 4–5: Functions and graphs

Week 6: Limits

Week 7: Continuity

Week 8: Properties of continuous functions

Week 9: Suprema and infima

Week 10: Uniform continuity

Weeks 11–12: Derivatives

Advanced
Calculus II S21

Week 13: Mean value theorems and L'Hôpital's rule

Week 14: Convexity and concavity; inverse functions

Advanced
Calculus I F20

Expectations and grading rubric

Work submitted for a grade in this course will be graded in a rigorous fashion and should be prepared with a good deal of thought and care.

Complex Analysis
S20

Most of the work required in this course will consist of writing proofs. For a proof worth 10 points, scores will be based on the following guidelines.

Probabilistic
Methods F19

0 points.

The work contains no original steps toward a correct solution. This includes work that simply consists of relevant definitions or theorems without interpretation.

Advanced
Calculus II S19

3 points.

The work contains some original steps toward a correct solution but does not contain a workable outline of the full solution. This grade is also used if the student has misunderstood the question or made an unwarranted simplifying assumption that makes the problem trivial.

Combinatorial
Theory II S19

6 points.

The work contains an outline of a correct solution and several steps toward this solution. However, the writing may be unclear, or there may be holes in the argument.

Advanced
Calculus I F18

8 points.

The work resembles a full, complete proof, but it has some deficiencies. These may include incomplete sentences, abbreviating words with logical symbols such as those for “for all” or “implies”, imprecise definitions, or overlooking trivial cases.

Combinatorial
Theory I F18

10 points.

The work consists of a full, complete proof and is reasonably well written in complete sentences, without logical symbols. There may be minor typos or clumsy writing that could be improved, but no important steps of the solution are omitted or incorrect.

Abstract Algebra
S17

Linear Algebra
S16

Linear Algebra
F15

Evaluation

There will be **4 non-comprehensive exams**, on the following dates

Combinatorics II
S15

1. Wednesday 9/11,
2. Wednesday 10/2,
3. Wednesday 10/30,
4. Wednesday 11/20.

Topics in
Combinatorics
F15

There will also be approximately **10 homework assignments** (due almost every week we don't have an exam).

Combinatorics
F14

The exams will collectively count for 60% of final numerical grades (each exam will count equally, none will be dropped) and the homework assignments for 40% of final numerical grades (each homework will count equally, none will be dropped).

Linear Algebra
F14

Differential
Equations S13

Final letter grades will be assigned on a curve, which will be no tougher than the 10-point scale: 90%–100% will be some form of A, 80–90% will be at least some form of B, etc.

Graphs & Digraphs 7th edition errata

Exams will be **in-person and closed book**, held in the classroom. Homework may be submitted either online or in physical form before the start of class on the due date. Both handwritten and typed submissions are acceptable. For homework, you are encouraged to refer to your notes and textbook, and to consult with your classmates.

Late assignments will only be accepted by prior agreement or in the case of an excused absence.

If you have a disagreement with the grading of one of your solutions, I ask that you submit a written request for reconsideration within one month.

The UF grading policy for assigning grade points may be found at <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

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.

Class attendance

Attendance is strongly encouraged but is not a component of grades. Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

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>.

Accommodations for students with disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center (352-392-8565, <https://disability.ufl.edu/>). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Online evaluations

Students are expected to provide professional and respectful feedback on the quality of

instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

U matter, we care

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

In-class recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

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