Instructor: Slobodan Simić
Office: 318A MacQuarrie Hall
Phone: (408) 924-7485 (email is a better way of contacting me)
Email: simic@math.sjsu.edu
Web: http://www.math.sjsu.edu/~simic/Spring10/Math231A/231A.html


Other recommended books: (not required) H. L. Royden, Real Analysis, third edition, Prentice Hall, 1988

Prerequisite: Math 131B (with a grade of "C-" or better) or instructor consent.

Office hours: Mondays and Wednesdays 2–4 and by appointment

Homework: I plan to assign roughly weekly homework sets. Solutions to most of the problems will be provided.

It is essential that you work on every homework exercise. My late homework policy is: one class late – 50% penalty, two classes late – no credit.

Tests: There will be a midterm and a final exam (both take-home). Each student will also be required to write a short literature review paper on a topic of his/her choice.

Midterm: February 24–March 3, 2010
Final exam: May 17–24, 2010

There will be no make-up exams.

Grading policy: Homework 20%, Midterm 20%, Paper 20%, Final 40%

Course outline: We will study Lebesgue measure and integral on Euclidean spaces. I will closely follow the textbook. We will start with a discussion of the motivation for Lebesgue theory and then define Lebesgue measure and measurable functions on $\mathbb{R}^d$. This will be followed by the study of Lebesgue integral on $\mathbb{R}^d$, the space $L^1$ of integrable functions and Fubini’s theorem. We will then take a fresh look at the differentiation and integration of real-valued functions and the Fundamental Theorem of Calculus, which will be shown to hold for absolutely continuous functions. We will then move on to study Hilbert spaces, with special attention to the space $L^2$ of square integrable functions and the Fourier transform on $L^2$. Time permitting, we will conclude the course with the study of abstract measure and integration theory.
Main goals: The main goal of the course is to acquire a deep understanding of Lebesgue measure and integral on Euclidean spaces, with applications.

Participation: During class please feel free to stop me at any time and ask questions. I encourage and greatly appreciate students’ participation.

Feedback: I appreciate constructive feedback which you can give me via the anonymous feedback form on the class web page, by email, or in person.

Academic integrity: From the Office of Student Conduct and Ethical Development: Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University’s Academic Integrity Policy, require you to be honest in all your academic coursework. Faculty are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct.

Campus policy in compliance with the Americans with Disabilities Act: If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with your instructors as soon as possible, or see them during office hours. Presidential Directive 97-03 requires that students with disabilities register with DRC to establish a record of their disability.

Class attendance: According to University policy F69-24, Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.

Furloughs: This year across this campus and around the CSU system some class days will be cancelled because of furloughs. A furlough is mandatory unpaid time off; faculty and staff on each CSU campus are being “furloughed” two days per month. It is important to recognize that these days off are not holidays. Instead, they are concrete examples of how massive state budget cuts have consequences for you as students and for me as a faculty member.

The CSU has suffered chronic underfunding for at least 10 years. This year the budget cuts are the worst in the history of our university system – 584 million dollars or 20% of our budget.

The CSU administration is attempting to deal with these cuts with huge increases in your student fees (32%), eliminations of your classes, and lay-offs of faculty and other university employees.

In addition to paying higher fees, you will be affected by reduced services and classes. The library will have shorter hours. Many campus support services will be decreased or eliminated. It will be more difficult to get signatures to meet deadlines. Classes you need may have been cut from the class schedule or are full.

If you would like to take action, or simply learn more, I strongly recommend you contact the California Faculty Association on campus.

The furlough days for this class will be announced on the first day of class (also check the class web site).