Instructor: Andre Carneiro  
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Room 408 Math

Lectures: Mo/Tu/We/Th 10:45am-12:20pm in Room 417.

Classes start on Monday, July 8th and end on Thursday, August 15th.


You are not required to own a copy of the textbook but be aware that it will be used as a source for homework problems. For some sections we will follow the text closely and for some others we might do things a bit differently. We might occasionally use Rudin’s Real and Complex Analysis for complementary topics.

Goals: We will finish any material not covered in Math S4061D and cover topics from Chapters 8-11 of the textbook. It is also expected that students will be well versed in proof-writing and will be able to take more advanced courses in analysis and geometry by the end of this class.

Prerequisites: The official prerequisite is S4061 (Introduction to Modern Analysis I) or the equivalent.

TA: TBA

Office Hours: TBA

TA’s Office Hours: TBA

Homework: Problem sets will be assigned every Tuesday and Thursday. They are due one week later, in the course mailbox, before class starts. You are encouraged to discuss the assignment with me, the TA and your colleagues but you must write up solutions on your own. In respect to the TA, late homework will not be accepted.

Bonus problems: (optional) I will try to post a list of more challenging questions every week. These will usually be more difficult problems and may cover material that
is beyond the scope of the course. If you attempt any bonus problems, you can hand them in with your Thursday homework. These will not be formally graded but the TA and I will be happy to comment your solutions during office hours or by email.

**Midterms:** We will have in-class midterms, dates TBA.

**Final:** The final exam is scheduled by the University to be on the last day of classes, **Thursday, August 15th.** Take this into account when making travel arrangements.

**ODS:** If you foresee any need for special testing accommodations, you should contact the Office of Disability Services. Since registering at ODS and filing all the required paperwork can take a while, you should do this well in advance of our first exam.

**Grade:** The final grade will take into account the homework (30%), the midterms (20% each) and the final (30%).

**Help Room:** You can go to Room 406 Math and ask any TA there for help with homework and general doubts. The help room schedule can be found in the Math department homepage.

**Schedule:** (tentative)

Weeks 1 and 2: Any material left over from S4061D; Basic properties and examples of functions defined by power series; Introduction to Fourier series. (Chapters 7 and 8)

Weeks 3 and 4: Review of linear algebra; Differentiation of functions between Euclidean spaces; The general chain rule and several special cases; The contraction lemma; The inverse function, implicit function and rank theorems; Higher order derivatives and the equality of mixed partials; Exchanging integrals and derivatives. (Chapter 9)

Weeks 5 and 6: Further topics according to time and student interest, including differential forms, integration, Stokes theorem, basic measure theory and Lebesgue integration. (Chapters 10 and 11)