

Syllabus for Math 6395

Topics in C^* -algebras

Spring 2014

Instructor: Dr. Mark Tomforde

Office: 601 PGH

Instructor Web Site: www.math.uh.edu/~tomforde

Course Web Site: www.math.uh.edu/~tomforde/Math6395S14.html

Office Hours: Monday 1PM–2PM (email appointment required), or email to set up another time.

Note About Office Hours: I encourage you to come by my office if you have any questions, need help with homework problems, or would just like to talk about the material. Please send me an email to set up an appointment if you want to come to office hours. If you can't make it to scheduled office hours, email me and we can set up a mutually convenient time to meet.

Meeting Times: MWF Noon–1PM in 302 AH.

Prerequisites: Point-set topology and a modern algebra course covering rings and modules. Some background in functional analysis (particularly operators on Hilbert space) is also useful.

Course Web Page: The course web page is located at

www.math.uh.edu/~tomforde/Math6395S14.html

On the course web page you will find a schedule of reading and homework assignments as they are made.

Structure of the Class: Most weeks, we will have a reading assignment due on Monday. At that time, you will be asked to turn in a list that includes typos, errors, and anything in the reading you found unclear. On Monday and Wednesday of the week, I will lecture on the material you read for that week. Lectures will summarize the readings, but I won't be able to go through everything. So it is very important you read on your own or you will fall behind. On Friday you will be asked to present solutions to

exercises based on the readings. You will receive the following week's reading assignment on the Wednesday preceding the Monday it is due.

Here is a summary of our typical weekly schedule:

Monday

Turn in List of Typos/Comments for Reading Assignment N .

Lecture #1 on Reading Assignment N .

Wednesday

Reading Assignment $N + 1$ assigned.

Lecture #2 on Reading Assignment N .

Friday

Student presentation of problems from Reading Assignment N .

There will be no tests or exams. Solutions to homework will be presented in class, but do not need to be turned in. Reading assignments will be handed out in physical form in class (no PDFs). You must do the assigned reading and turn in a reading list with typos/comments for each reading assignment. Due dates will be assigned to reading and the reading list you must turn in. No credit will be given for late work.

Grades will be based on participation and your level of engagement in the class. Participation and engagement will be measured through (1) Your attendance in class, (2) The reading list you turn in each Monday, (3) Problems presented on Fridays, and (4) The degree to which you are an active participant in the class.

As described in the course description, I am tailoring the course to the people who have enrolled. Since most of the students enrolled have a background in functional analysis, and many of you are currently working on theses involving C^* -algebras, we will assume the basics of C^* -algebra theory (e.g., what you would see in the functional analysis sequence) and build from there. If you do not have any exposure to C^* -algebras, the prerequisite C^* -algebra knowledge is covered in Chapters 1–3 of [Mur90] or Chapters VII and VIII of [Con90].)

What You Should Include on the List You Turn in for Each Reading Assignment:

- Any typos, grammatical errors, spelling errors, mathematical errors, or mistakes of any kind — no matter how small or seemingly insignificant. If possible, also describe how the error can be fixed (especially for a mathematical error).
- Anything that you find unclear, unconvincing, or difficult to read.
- Any issues of style. If a sentence or phrase is awkward or confusing, point it out and suggest a way to rewrite it.
- Suggestions you have for improving any aspect of the writing.
- Anything else you think is relevant.

You have a few options for creating the weekly list that you turn in.

(1) Write out (or type) your list by referencing page and line, and using the format <blah> should be <bleh>. For example:

p.3, line -7, <of> should be <if>.

p.9, first line of the proof of Theorem 1.7.2, I do not understand why every flooglegroup intersects the kernel nontrivially.

p.12, line 14, $\int_0^1 x dx = 1$ should be $\int_0^1 x dx = 1/2$.

(2) Write directly on the pages of the reading assignment I give you, photocopy the pages where you make corrections, and turn them in.

References

[Mur90] G. J. Murphy, *C*-algebras and Operator Theory*, Academic Press, San Diego, 1990.

[Con90] J. Conway, *A Course in Functional Analysis*, 2nd ed., Springer-Verlag, New York, 1990.