

## MATH 679: Composition Operators

### Fall 2017 – Syllabus

**Instructor:** Dr. Flavia Colonna

**Office:** 4215 Exploratory Hall

**Office Hours:** TR 12:30 p.m. - 2:00 p.m. or by appointment.

**Prerequisite:** A working knowledge of complex analysis in one variable and linear analysis.

**Textbook:** Joel H. Shapiro, *Composition Operators and Classical Function Theory*, Springer-Verlag, New York, 1993.

**Topics include:**

- Linear fractional transformations
- The Hardy-Hilbert space  $H^2$  and Littlewood's subordination principle
- Compact and non-compact composition operators
- Compactness and univalence
- Angular derivative and iteration
- Cyclicity in the linear fractional case
- Weighted Hardy spaces  $H^2(\beta)$

**Homework:** There will be six homework assignments due every other week.

**Presentations:** Each student will prepare an oral presentation on a course topic and be prepared to answer questions on that topic.

**Exams:** There will be a take-home final exam assigned on the last day of classes. The due date is Dec. 14 at 1:30 p.m.

**Grading:** The homework, the oral presentation, and the final constitute 30%, 30%, and 40% of the final grade, respectively.