

# Readings and Discussion Questions

Thursday October 19

Read Chapters: 5.1, 5.2

## Discussion Questions

1. Is there a containment relation between Hölder spaces as  $\gamma$  varies?
2. Why do we require  $\gamma \leq 1$  in the definitions on pg.254 and pg.255?
3. Why do we get the commutativity of weak partial derivatives (Theorem 1 (i)) when the corresponding result for ordinary partial derivatives requires an additional continuity hypothesis?
4. In what sense does the definition of weak partial derivatives derive from the integration by parts formula?
5. Is  $W^{k,p}(U)$  a closed subspace of  $L^p(U)$ ?