Assignment #6

Due Friday, 20 March 2020, at the start of class

At this point you should be relatively comfortable with Chapters 7–9. Please read Chapter 10 on Hilbert spaces. This is relatively easy material because we are used to calculations in the inner product (Hilbert) space $\mathbb{C}^n$.

One exercise below is identified with your initials. Please LaTeX this problem and send both the `.tex` and `.pdf` to me at `elbueler@alaska.edu` by the due date.

DO THE FOLLOWING EXERCISES from the textbook (Muscat, *Functional Analysis*, 2014):

- #1 in Exercises 10.10, page 177. *Just prove the first sentence. Ignore the later parts.*
- #4 in Exercises 10.10, page 178. *Prove the second sentence. Formulate and prove a proposition for the third sentence (the question).*
- #13 in Exercises 10.10, page 178. *Set up and prove a multi-point proposition which addresses all the parts.*
- #6 in Exercises 10.15, page 183.
- #7 in Exercises 10.15, page 184. *Just do parts* (a), (b), (c).
- #9 in Exercises 10.15, page 184. *Just do parts* (a), (b), (c). *The "main theorem" means Theorem 10.11.*
- #1 in Exercises 10.18, page 187. *Prove that the two norm formulas match the usual norms on the spaces X and $B(X,Y)$, respectively. Use notation carefully to distinguish which is the original norm.*
- #1 in Exercises 10.26, page 199. ⟵ **OS**
- #3 in Exercises 10.26, page 199. ⟵ **WV**
- #5 in Exercises 10.26, page 199. ⟵ **DD**