# MATH 311 Advanced Linear Algebra

Homework 6

## Basic Information

This assignment is due in the correct folder in Google Drive by **4 PM on Friday, March 7**. Any part of the assignment you LaTeX can be turned in by 10 PM without penalty.

Make sure you understand MHC honor code and have carefully read and understood the additional information on the class syllabus and the grading rubric. I am happy to discuss any questions or concerns you have!

You are always welcome to ask me for small hints or suggestions on problems.

## Problems

1. P.5.16 Remember, when a problem says "show" you should interpret that as saying "prove".
2. P.5.20 You need to use induction to prove this result.
3. P.5.26
4. P.5.29
5. P.6.1. Just show your computations (don't need to explain much) and make sure you follow the instructions (i.e., use Theorem 6.2.5).
6. P.6.15
7. (a) Find an orthonormal basis of $\mathscr{P}_3$ (polynomials in $\mathbb{C}$ of degree at most 3). Don't show every computational detail but instead explain in words your process and how you know that what you found is an orthonormal basis.
   (b) Use the basis you found in (a) to answer P.6.17.