

Math 221 – Linear Algebra  
MWF 11:30 - 12:20, Ye Merrie Olde Science Centre 1314

Bill Goldbloom Bloch  
*Physical Office:* Ye Merrie Olde Science Center 1307  
*Virtual Office Hours:* T 11:30 – 12:20  
T 1:30 – 2:20  
T 3:30 – 4:20  
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*Prerequisites* Self-Discipline and Mathematical Maturity, a sense of humor, and a willingness to work hard. The text for the course is *Linear Algebra and its Applications*, 5th Edition by David Lay. We will use the generally excellent computer algebra system *Mathematica* for many non-trivial calculations: Wheaton’s license allows free use on campus, or you may purchase your own copy at a discounted rate. (Download instructions are available on the class webpage.) However, wolframalpha.com will also do everything that we want, and it is free, unlicensed, and available anywhere with an internet connection.

*Course Objectives* There are many reasons for taking the class. This course will dive first into classical ways of thinking about *linear maps* from  $n$ -dimensional space to  $m$ -dimensional space—and linear maps are important because any function of general interest can be well approximated by them. There are also many cool applications, including Google’s page rank algorithm, Hamming’s self-correcting error code, chains of events with transitional probabilities, and finding how US News & World Report ranks schools; we will explore these in differing degrees. Finally, we may look at least a little bit at the ways linear algebra is used to model solutions to differential equations: surely this was the most important use of linear algebra for many decades before computer capabilities became so powerful.

*Homework* There will be ten homeworks assigned over the course of the semester, graded on a scale of 0–10, thus contributing a total of 100 points to your final grade. The homework is normally due at the beginning of class on days marked on the schedule. Note: there is no such thing as ‘late homework.’

*Tests* For both of the first two exams, you may use one 8.5 x 11 sheet of paper with anything written on it—both sides!—if you wish. The final exam is Wednesday, December 2<sup>nd</sup>, starting at 2pm EDT. You may use three sheets of notes for it. **Make-up exams require documentation of extraordinary circumstances.** The exams are graded on the scale of 0–100.

*Grading Policy* At the end of the term, your total number of points (out of 400) will be added together to give your final grade. All points are the same; ‘exam points’ don’t count differently than ‘homework points.’

**It’s important to note that this does not mean that, for example, that 360 points and above guarantees an A.** Usually the grades are curved, but that’s no guarantee for this term. Extra points can be earned in the following fashion: Five points for coming to virtual office hours (points given only on first visit). If you wish to argue about points assigned, you must do it within a week of the return of the work in question. Furthermore, I reserve the right to *lower* your points if I think you are merely haggling.

*Online sessions* As you know, the online component of the class will be recorded. Your participation constitutes implicit acceptance that if your camera or microphone is on, you may be recorded. Also, all that may be done with any of the recordings is passive viewing. Posting, sharing, editing, screenshotting, or similar non-viewing acts will be considered, at the very least, a violation of the Honor Code. Please respect the confidentiality of the class.

*Honor Code Violations* Over the years, I have caught many violations of the Honor Code. The punishment tends to be much worse than the grade received for handing in a bad assignment or test. There has been a surge of cheating incidents in the past few years, and when we uncover them, we respond mercilessly. Your first assignment is reading the Wheaton Honor Code and related materials, and then sending me a note acknowledging having read them. Finally, as per student initiative, for all course work, students must write and sign the following: “I have abided by the Wheaton College Honor Code in this work.”

*Your first homework assignment involves the Honor Code.*