

# Mathematics for the math part of MS comp exam

## Mathematics that may be tested in MS Math part

The link to the specific requirements for the math part of the MS exam is [here](#). This guideline is the primary resource for the math part of the MS exam—not ECE 278. If there is any question the guideline supercedes the material in ECE 278.

## How this class fits in

This class is a **supplement** to the requirements listed above covering and integrating **part** of the material. **ECE 278 is not a comprehensive treatment of all the mathematics that could be tested on the math part of the MS exam!** The basic rule is that any material in ECE 278 **may** be on the exam, but material on the exam **may not** be covered in ECE 278.

In particular, ECE 278 does not cover any of the material from the UCSD sequence Math 20 A, Math 20 B, and Math 20 C, and only **partially** covers other material. Therefore ECE 278 should not be used as a substitute for the material covered in these classes. The goal of ECE 278 is to integrate several mathematical topics into a cohesive whole that can be applied to a variety of engineering problems. This integrated approach should aid your preparation for the math part of the MS comp exam.

## Material in Kreyszig that is appropriate for the math part of the MS Exam

One useful feature of the text is that it covers the three main areas tested in the math part of the MS exam: linear systems and algebra, calculus and differential equations, and probability. The following sections in the book provide a **good starting point** for these topics, but the material in the book is not sufficiently in depth. Its strength is that all the (starting) material is in one place.

### Linear Systems, Algebra and Transformations

All of Chapter 7 and Chapter 8  
Chapter 11.1, 11.5-11.6, notes on signal space.

### Calculus and Differential Equations

All of Chapter 1-4  
All of Chapter 6  
All of Chapter 9-10  
Chapter 12.1-12.3 (intro. to PDEs)  
This material provides reasonable coverage of differential equations and vector calculus.

### Probability

All of Chapter 24

This coverage is not sufficient and will be supplemented with class notes. This is the weakest part of the text. Do not assume that knowing the material in the text is sufficient for the exam!