

MTH/CS 4240/6240 – Coding Theory Spring 2023

Location M/W at 6:10–7:30 in 103 Oelman

Text *Coding Theory: A First Course* by S. Ling and C. Xing

Instructor Dr. Daniel Slilaty

Office 263 M&M

Phone 775-2572

E-mail daniel.slilaty@wright.edu

Final Exam: *Wednesday April 26, 5:45-7:45*

Webpage Most course content is posted at the following URL. I do not post course content on Pilot.

<https://www.daniel-slilaty.xyz/>

All of the announcements, lecture notes, and homework solutions will be posted on the course webpage in PDF format.

Grading Policy The percentage breakdown of your grade is as follows.

3 Mid-term exams – 10% for the lowest grade and 30% for the two higher grades

Cumulative final exam – 30%

Your final score is calculated according to these percentages and your grade is assigned on the following scale

80–100=A

65–79=B

55–64=C

40–54=D

0–39=F

Office Hours Drop-in office hours are held M/W 5:00–6:00 and briefly after class. I am also available by appointment both in person and on WebEx.

Attendance Your attendance at all class meetings is **REQUIRED**. There are no excused absences for any reason whatsoever. Everyone will be given five absences without penalty. Each absence after the fifth will result in a reduction of 3 points in your final average. If you have to miss class, then you are responsible for keeping up with the material. Again, all pertinent information for the class is posted on the class webpage (not on Pilot). If for some serious reason, you need to miss an examination, let me know at least one week in advance and we will try to work something out.

Homework Assignments Homework will be assigned on most days. There are no graded homework assignments, but we will spend time discussing assigned problems during class. It is a critical matter that you complete these assignments. If you do not complete them, it will be very difficult for you to receive a satisfactory grade in this course. If you are having trouble, then I expect you to come to me for extra help.

Exams Exam problems will be very similar to homework problems as well as examples presented during class. For this reason **you will need to fully understand each and every example and problem presented**. If you are having trouble, then I expect you to come to me for extra help.

Graduate Students Students who are registered for the course under MTH/CS 6240 will have some extra and more-challenging problems on exams.

Preliminary Syllabus

- Chapters 1 & 2 – Error detection, correction, and decoding
- Chapter 3 – Finite fields
- Chapter 4 – Linear codes
- Chapter 5 – Bounds in coding theory
- Chapter 7 – Cyclic codes
- Chapter 8 – Some special cyclic codes
- Extra Chapter – Codes from graphs
- Chapter 6 – Constructions of linear codes