

Math 345 – Information Theory (Spring 2017)

Instructor: Kevin Woods, King 220B, Kevin.Woods@oberlin.edu. Call me Kevin! (he/him/his)

Class: Tues/Thurs 1:30-2:45pm, King 239. Unless some of you have a problem with it, I will give you a five-minute break in the middle but go until 2:50pm.

Office Hours:

Tuesday 12-1:30pm, 3-4pm, Wednesday 3-5pm, Thursday 3-3:30pm, and by appointment. Also, feel free to stop by any time my door is open (but be understanding if I say I am too busy).

Recommended Textbook:

Information and Coding Theory, by Jones and Jones, first and only edition, Springer. We will cover most of this book, plus I will give you some extra readings. I do not expect you to know anything I don't say in class, and I will give you problem sets as handouts. However, we will follow this book for a little over half of the semester, and it is a good read. And it is reasonably priced! A copy is available in **King 203**, but please don't take it out of that room.

Blackboard:

<http://blackboard.oberlin.edu>. I will post homework, reading, and other announcements here.

Grading:

Problem Sets (40%),
Project (10%),
Two Take-Home Midterms (15% each),
Final Exam (20%).

Problem Sets (40%).

The best way to learn the concepts in this course is to get your hands dirty! I hope you will work in groups on these, though your written solutions must be in your own words. This is also an opportunity to work on writing careful, clear proofs and explanations. Good mathematics is articulate mathematics! Explain things carefully and in complete sentences. Imagine that another student in the class who hasn't done this problem yet will read your solution: they should be able to understand it without having to ask you questions. These problems will be graded for both correctness and how coherently written they are. Problem sets will be due approximately every Thursday..

Honor Code: You should (but aren't required) to work together on these problems, but your written solutions must be your own. Please indicate on your solutions who you worked with.

Late Work Policy: They are due at 4:30pm. If you do not hand them in at class, I will leave an envelope outside my office for you to put them in. If you get them in late, but before the grader takes the envelope, you get full credit. Otherwise, you get a 0. I will drop your lowest homework grade at the end of the semester, so I generally do not make exceptions for sickness, etc.

Project (10%).

You will work in small groups on a topic not covered in the course. This could be a topic in the textbook or some other book, or it could be a topic from a journal article. Your group will give a presentation in the last couple of weeks of the semester. We will schedule special class times some weekend/evening to do this. I will give more information soon about possible topics, requirements, etc.

Two Take-home midterms (15% each).

Tentatively due Tuesday, March 7 and Tuesday, April 18. These will be open book, and you'll get several days to work on them. You will work alone on these. I'll give you more information as the time approaches.

In-class Final Exam (20%).

Saturday, May 13, 9-11am. The final exam will cover the entire course. It will be closed book, but you will be able to use something like an 8.5x11 sheet with notes.

Disabilities:

If you have a disability of any sort that may affect your performance in this class, please consult with me and with Jane Boomer in the Office of Disability Services. All requests for accommodation must go through that office.