UNIVERSITY OF WYOMING

Department of Mathematics
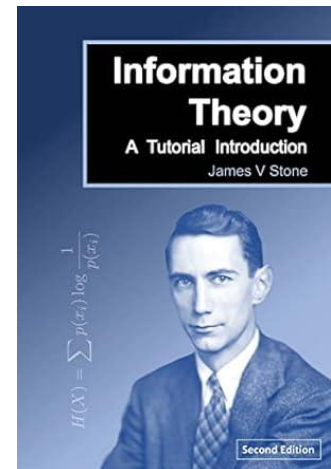
Information Theory

POLICIES / SYLLABUS

Instructor

Eric Moorhouse, Ross Hall $6^3 = 216$, moorhous@uwyo.edu, https://ericmoorhouse.org

Office Hours:
MWF 10:00–10:50 am; T 1:30–2:50 pm, R 2:10–3:30 pm. In addition to my regularly scheduled office hours, please feel free to see me at other times, either by appointment or at other times if I am not busy. My current schedule is posted at https://ericmoorhouse.org/schedule.html

Class Meeting:
MWF 12:00–12:50 pm in RH 247. I do record pdf slides of lectures, and audio/video recordings, for your future reference. These will be posted through the course website (see below). Do not take this as an invitation to skip class without good reason. Students who consistently attend class perform better than those who do not.

Textbook:
James V. Stone, *Information Theory, A Tutorial Introduction,* Cambridge Univ. Press, 2022, 2nd edition. The textbook is appropriate for anyone who knows calculus (i.e. undergraduate level and above).

Additional Resources (optional):
For any participants who want to read beyond the textbook level, please consider additional references, including the following.

- C. Shannon, *A Mathematical Theory of Communication*, 1948. https://people.math.harvard.edu/~ctm/home/text/others/shannon/entropy/entropy.pdf (the paper that started it all!)
- Cover and Thomas, *Elements of Information Theory*, 2nd ed., Wiley, 2006.
- Jones and Jones, *Information and Coding Theory*, Springer, 2000.
- Ash, *Information Theory*, Dover, 1965.
- Pierce, *An Introduction to Information Theory—Symbols, Signals and Noise*, 2nd ed., Dover, 1980.
- Feynman, *Feynman Lectures on Computation*, Perseus, 1996.
- Siegfried, *The Bit and the Pendulum*, Wiley, 2000.

MATH 5090 Home Page: Course announcements, handouts, homework assignments, etc. will be posted at the official course website https://ericmoorhouse.org/courses/5090/ (not on WyoCourses, which is reserved for confidential information). Here you will find pdf and video recordings of lectures.

Grading Scheme: I will assign grades (A, B, C, D, F, W) at the end of the semester according to the scale: A=exceptional, B=very good, C=adequate, D=poor, F=fail, W=withdrawal. I always encourage students to

Participation	50%
Homework	50%

consult me at any time during the semester with questions, including (but not restricted to) questions about your progress in the course. You may ask questions by email, at your own risk (remember that email is not secure); but questions asked in person typically receive more prompt and complete answers.

I also encourage students to present a topic during class for part of their grade. The terms of this can be negotiated directly with me provided you do so early in the course, so that I can be sure the topic is suitable and that you have suitable resources for preparing a presentation on the topic we have agreed upon. Please discuss this with me early in the course (before midsemester) if this is of interest to you.

Homework: Homework assignments will be assigned on a regular basis. It is fine for you to discuss the homework with other students. However, please do not copy anyone else's work directly. Copying adversely affects your grade; but more importantly, of course, you won't be adequately learning in this way.

Participation: You are expected to attend class regularly. A portion of your grade will be based on the regularity of your presence in class, but also on your involvement in class discussions. If you know that you cannot attend on a particular date, I encourage you to email me to let me know, as this will be helpful in monitoring your overall progress.

Appropriate Conduct/Academic Dishonesty: For issues of classroom deportment, etc., we refer to Classroom Climate and Conduct. This document is also linked on both the course website and the WyoCourse page. See also UW Regulation 2-114 (Academic Dishonesty).

Syllabus Changes: This syllabus is subject to change. Updates to this syllabus will appear electronically on the course website, and you will be alerted by email.