

Chapter 2: Review of Probability

Qichao Tan

July 22, 2024

My note for reading the book, Statistical Methods in the Atmospheric Sciences (4th Edition) written by Daniel S. Wilks.

Disclaimer: This document will inevitably contain some mistakes— both simple typos and legitimate errors. Keep in mind that these are the notes of a graduate student in the process of learning the material himself, so take what you read with a grain of salt. If you find mistakes and feel like telling me, I will be grateful and happy to hear from you, even for the most trivial of errors. You can reach me by email, in english or mandarin, at tqc1230@outlook.com.

For more notes like this, visit [link](#).

Qichao Tan,
Summer: 2024,
Last Update: July 22, 2024,
Department of Atmospheric and Oceanic Sciences, UCLA

Contents

Lecture 1	1
1.1 Background	1
1.2 The Elements of Probability	1

July 22 2024 Mon

Lecture 1

1.1 Background

Statistics is a mathathematic expression for qualitative descriptors like "likely", "unlikely", "possible" and "chance of". Probability is developed logically from three premises called the Axioms of Probability.

1.2 The Elements of Probability

To begin with, we need three terminology used in probability, event, the sample space and the axioms of Probability.