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# Preface

## Introduction and Goals

For years, I have been joking with my students that I would teach probability with the same level of excitement even if I were woken up in the middle of the night and asked to teach it. Years later, as a new father, I started writing this book when it became clear to me that I would not be sleeping at night for the foreseeable future.

This book is intended for undergraduate and first-year graduate-level courses in probability, statistics, and random processes. My goal has been to provide a clear and intuitive approach to these topics while maintaining an acceptable level of mathematical accuracy.

I have been teaching two courses on this subject for several years at the University of Massachusetts Amherst. While one of these courses is an undergraduate course taken by juniors, the other is a graduate-level course taken by our first-year Masters and PhD students.

My goal throughout this process has been to write a textbook that has the flexibility to be used in *both* courses while sacrificing neither the quality nor the presentational needs of either course. To achieve such a goal, I have tried to minimize the dependency between different sections of the book. In particular, when a small part from a different section of the book is useful elsewhere within the text, I have repeated said part rather than simply referring to it. My reasoning for doing so is twofold. Firstly, this format should make it easier for students to read the book and, secondly, this format should allow instructors the flexibility to select individual sections from the book more easily.

Additionally, I wanted the book to be easy to read and accessible as a self-study reference. It was also imperative that the book be available to anyone in the world, and as such the book in its entirety can be found online at [www.probabilitycourse.com](http://www.probabilitycourse.com).

The book contains a large number of solved exercises. In addition to the examples found within the text, there is a set of solved problems at the end of each section. Detailed and step-by-step solutions to these problems are provided to help students