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SECOND EDITION

David J. Glass

Novartis Institutes for Biomedical Research



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Second Edition

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Preface

AFTER THE FIRST EDITION WAS PUBLISHED, I had the opportunity to teach experimental design in a variety of settings. Every spring, Randy King of the Cell Biology Department at Harvard Medical School (HMS) and I offer a course of the same title as this book to graduate and MD/PhD students from the combined departments of HMS. In addition, I teach much more abbreviated versions of the material in the form of 5- to 10-hour “nanocourses,” and these have been given at The Rockefeller University, Columbia University, Novartis, Tufts, and as a distinct course for post-doctoral fellows at HMS. All of this experience provided the basis for writing this text.

First, the students gave very helpful feedback. The first edition was somewhat informal and chatty in style, and it was clear that more structure would be helpful. Thus, the second edition is organized in the sections that comprise our course. In all, the text was substantially rewritten, with many new chapters added. Only a few chapters made it from the first edition virtually unscathed, those being the chapters on the various types of controls, and one prior chapter was moved to the addendum.

I would like to thank those who helped with this book. Thank you very much to Cold Spring Harbor Laboratory Press for their support at every stage. Michael Zierler capably edited the book. Inez Sialiano, the Project Manager, was quite patient and supportive throughout the process. Thank you very much also to William Karlson and Marc Egerman, who read every chapter and provided very useful edits. My assistant Sherry Rozek also read quite a bit of the book and was very helpful in giving feedback. Edits to distinct sections were provided by Joe Blitzstein from Harvard and Jens Praestgaard of Novartis. Individual chapters were reviewed by former students, including Eli Anders, Brad Bolman, Geoff Smith, Alicia Smart, and Daniel Taylor.

With the exception of one cartoon that is a carry-over from the first edition, all of the figures are new. These line drawings were executed by a young artist named Yunhan Xu. Thanks very much to her for her work. The minimalist style seemed to work well in representing the kind of hand-drawn representations that one might find in a lab notebook. The original cartoon was drawn by Woody Fu, as noted.

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Of course, if despite all of the attempts at editing and improving the book, errors remain, those are purely my responsibility. If you find any such errors, please let me know; you can email me at david_glass@hms.harvard.edu.

My colleagues at the Novartis Institutes for Biomedical Research have been very supportive of my teaching efforts, for which I am quite grateful. Special thanks especially go to Mark Fishman for this. And thanks to Leslie Pond for helping me get the Novartis version of the course off the ground.

Harvard has been tremendously supportive of the course. Thanks especially go to Randy King, who has given excellent and consistent feedback over the years and who has co-taught our course since its inception. Thanks also to Catherine Dubreuil—an education fellow at HMS—who has helped with versions of the course. I also appreciate Joan Brugge's welcome and support for our efforts and for giving me a home in the Department of Cell Biology at HMS.

At Rockefeller, thanks to Sid Stickland, Winrich Freiwald, Marc Tessier-Lavigne, and Emily Harms for helping with the nanocourse there. At Columbia, thanks go to Fred Loweff, Ron Liem, and Steve Goff.

Ultimately, the success of a book such as this is whether the reader finds it helpful. It would therefore be great to hear from you with any suggestions for future editions.

Best of luck in your research!

David Glass
May 12, 2014

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SECTION ONE

PHILOSOPHY OF EXPERIMENTATION

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