An Introduction to Drugs and the Neuroscience of Behavior

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AN INTRODUCTION TO

Drugs and the Neuroscience of Behavior
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Behavior

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Northern Michigan University
To Jennifer, Kendell and Daniel
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Adam Prus is an Associate Professor in the Department of Psychology at Northern Michigan University, in Marquette, Michigan. He earned his Ph.D. in psychology from Virginia Commonwealth University. While in graduate school, he also worked as a research technician at a large pharmaceutical company. After earning his degree, he served as postdoctoral fellow in the Psychopharmacology Division of the Department of Psychiatry at Vanderbilt University, working under the mentorship of Herbert Meltzer, a leader in antipsychotic drug research.

Adam has published numerous original studies on psychoactive drugs and conducts research projects funded by the National Institute of Mental Health, private foundations, and pharmaceutical companies. When he is not teaching or doing research, Adam spends time with his family, fixes up their house (which he thinks has a lot of potential), and works on his golf game (which may have less potential, but is enjoyable nonetheless).
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Since my undergraduate years in psychology, I’ve been fascinated by how psychoactive substances produce behavioral effects. This interest led to a career in psychopharmacology research that included many graduate and postdoctoral years studying lab rats in Skinner boxes and mazes. Once I began teaching undergraduates at a university, I found that my students were also curious about how drugs altered behavior. Students wondered not only about the physiological impacts of college drug use but also about how medicines can treat psychological disorders such as depression and schizophrenia. But of particular interest were the effects of psychoactive drugs on the brain. This introductory textbook developed from my efforts to address these interests.

An Introduction to Drugs and the Neuroscience of Behavior offers an introduction to the field of psychopharmacology from the perspective of how drug actions in the brain affect psychological processes. The text approaches this rapidly advancing field by providing an introduction to major topics in psychopharmacology. I kept in mind that students have different backgrounds in neuroscience. Therefore, Chapter 2 provides an introductory overview of the nervous system, and Chapter 3 provides a basic coverage of neurotransmission.

Chapter 4 provides an overview of pharmacology principles, covering important drug properties that are necessary for understanding psychoactive drug actions and effects. By mastering these chapters on the nervous system and pharmacology, students will possess a sufficient background to comprehend subsequent chapters on psychoactive drugs.

In addition to the major drug classes in psychopharmacology, this book addresses newer drugs and recent trends in drug use. For example, the current edition includes information on bath salts, energy drinks, modern tobacco products such as tobacco orbs, medicinal marijuana, synthetic marijuana, and antidepressant drug use for treating anxiety.

**How the Materials Are Organized**

During the development of this textbook, I carefully attended to how this material is delivered to an undergraduate audience. My approach consists of a careful, step-by-step presentation of information supplemented by illustrations,
figures, boxes, and several unique pedagogical features. These features include the following.

**From Actions to Effects**

Each chapter ends with a section called “From Actions to Effects.” These sections cover a topic that brings together information presented in the chapter, providing a way to assemble multiple topics for addressing a single concept. In particular, these topics focus on a concept that requires understanding a drug’s actions to account for its effects. These sections aid in the conceptual understanding of chapter material.

**Stop & Check**

Stop & Check questions conclude each section in each chapter. These questions allow students to self-assess their understanding of main points covered in the previous section.

**Review!**

Chapters include important reminders of facts or concepts covered in previous chapters. This helps integrate the diverse material covered in this text.

**Research Techniques and Methods**

Chapters include boxes that cover a research technique or method used in psychopharmacology research. These boxes model good working science and provide an easy reference when students come across research findings derived from each technique. These studies are also important in fostering critical thinking habits in students.

**Key Terms**

Each chapter ends with a list of key terms from the chapter. A definition is provided for each key term in a combined glossary and index at the end of the book.

Visit www.cengagebrain.com to access the free companion Web site for this text, which includes a glossary, flash cards, quizzes, and more.

**Supplementary Materials**

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