

Genetics and Philosophy

In the past century, nearly all of the biological sciences have been directly affected by discoveries and developments in genetics, a fast-evolving subject with important theoretical dimensions. In this rich and accessible book, Paul Griffiths and Karola Stotz show how the concept of the gene has evolved and diversified across the many fields that make up modern biology. By examining the molecular biology of the 'environment', they situate genetics in the developmental biology of whole organisms, and reveal how the molecular biosciences have undermined the nature/nurture distinction. Their discussion gives full weight to the revolutionary impacts of molecular biology, while rejecting 'genocentrism' and 'reductionism', and brings the topic right up to date with the philosophical implications of the most recent developments in genetics. Their book will be invaluable for those studying the philosophy of biology, genetics, and other life sciences.

PAUL GRIFFITHS is University Professorial Research Fellow at the University of Sydney. He is the author of *What Emotions Really Are: The Problem of Psychological Categories* (1997) and *Sex and Death: An Introduction to the Philosophy of Biology* (with K. Sterelny, 1999). He is the editor of *Trees of Life: Essays in Philosophy of Biology* (1992) and *Cycles of Contingency: Developmental Systems and Evolution* (with S. Oyama and R. D. Gray, 2001).

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An Introduction

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Cover image: The ability of a DNA molecule to act as a collection of genes depends on many other molecules. This picture shows DNA being inactivated (switched off). The DNA double helix (purple) is in the process of being coiled tightly around histone molecules (blue-white) to form 'nucleosomes'. Once this is complete the DNA cannot be used as genes until the process is reversed. Thin 'tails' project from each cluster of histone molecules. Chemical modifications to these tails (bright yellow and turquoise) are produced by interactions with other molecules in the cell. It is these changes that control the processes of activation and inactivation. *Image courtesy of Etsuko Uno and the Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia.*