Paperback Re-issue

The origin of life from inert chemical compunds has been the focus of much research for decades, both experimentally and philosophically. Luisi takes the reader through the consecutive stages from prebiotic chemistry to synthetic biology, uniquely combining both approaches. This book presents a systematic course, discussing the successive stages of self-organization, emergence, self-replication, autopoiesis, synthetic compartments, and construction of cellular models, in order to demonstrate the spontaneous increase in complexity from inanimate matter to the first cellular life forms. A chapter is dedicated to each of these steps, using a number of synthetic and biological examples. The theory of autopoiesis leads in to the idea of compartments, which is discussed with an emphasis on vesicles to explain the synthetic biology of cellular systems, as well as describing attempts to generate minimal cellular life within the laboratory. The end-of-chapter review questions make this book will appeal to graduate students and to academics researching the origin of life and related areas such as biochemistry, molecular biology, biophysics, and natural sciences. Additional resources are available at www.cambridge.org/9780521821179.

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