Synthetic Biology - A Primer

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From World Scientific Publishing : Synthetic Biology - A Primer before purchasing it in order to gage whether or not it would be worth my time, and all praised Synthetic Biology - A Primer:

19 of 19 people found the following review helpful. Good overview of and introduction to synthetic biologyBy catfishI am currently working my way through the kindle version of this book, and am approx. 40% of the way through. It is a good introduction and I'm learning a lot from it. One thing to be aware of; it is quite technical and launches rapidly into both molecular biology and engineering. Be prepared to work at understanding and look things up online if you aren't already familiar with both areas. There's some advanced math - Fourier transforms, for example, though they aren't essential to understand most of what is in the book. If you aren't familiar with biology I recommend

reading a text on cellular or smaller-scale biology first.5 of 6 people found the following review helpful. Not for the LaymanBy Leo RoosThis book cannot be considered a primer. It reads well, but unless you are an expert in the field you are at a loss of what is a futuristic discussion and what is possible today.Unless you have a decent background in statistics, computer analysis and chemistry, the discussions will befuddle many of you.Cannot fault the layout or the topics or the writing style. However, as stated earlier it is aimed at those that have more than just a basic understanding of the aforementioned subjects to really understand the intent and discussions in the book.Leo Roos, Ph.D.0 of 0 people found the following review helpful. He enjoyed reading the bookBy SuperShopperGave as gift as requested by my student son. He enjoyed reading the book.

Synthetic Biology - A Primer gives a broad overview of the emerging field of synthetic biology and the foundational concepts on which it is built. It will be of interest to final year undergraduates, postgraduates and established researchers who are interested in learning about this exciting new field. The book introduces readers to fundamental concepts in molecular biology and engineering and then explores the two major themes for synthetic biology, namely 'bottom-up' and 'top-down' engineering approaches. 'Top-down' engineering utilises a conceptual framework of engineering and systematic design to build new biological systems by integrating robustly characterised biological parts into an existing system through the use of extensive mathematical modelling. The 'bottom-up' approach involves the design and building of synthetic protocells using basic chemical and biochemical building blocks from scratch. Exemplars of cutting-edge applications designed using synthetic biology principles are presented, including the production of novel biofuels from renewable feedstocks, microbial synthesis of pharmaceuticals and fine chemicals, and the design and implementation of biosensors to detect infections and environmental waste. The book also uses the Internationally Genetically Engineered Machine (iGEM) competition to illustrate the power of synthetic biology as an innovative research and training science. Finally, the primer includes a chapter on the ethical, legal and societal issues surrounding synthetic biology, illustrating the integration of social sciences in synthetic biology research. Readership: Students, professionals, researchers in biotechnology and bioengineering.

From the Inside FlapSynthetic Biology A Primer gives a broad overview of the emerging field of synthetic biology and the foundational concepts on which it is built. It will be of interest to final year undergraduates, postgraduates and established researchers who are interested in learning about this exciting new field. The book introduces readers to fundamental concepts in molecular biology and engineering and then explores the two major themes for synthetic biology, namely 'bottom-up' and 'top-down' engineering approaches. 'Top-down' engineering utilises a conceptual framework of engineering and systematic design to build new biological systems by integrating robustly characterised biological parts into an existing system through the use of extensive mathematical modelling. The 'bottom-up' approach involves the design and building of synthetic protocells using basic chemical and biochemical building blocks from scratch. Exemplars of cutting-edge applications designed using synthetic biology principles are presented, including the production of novel biofuels from renewable feedstocks, microbial synthesis of pharmaceuticals and fine chemicals, and the design and implementation of biosensors to detect infections and environmental waste. The book also uses the Internationally Genetically Engineered Machine (iGEM) competition to illustrate the power of synthetic biology as an innovative research and training science. Finally, the primer includes a chapter on the ethical, legal and societal issues surrounding synthetic biology, illustrating the integration of social sciences in synthetic biology research.From the Back CoverIn Synthetic Biology, expert researchers in the field provide the latest developments in molecular biology techniques used in Synthetic Biology. Focusing on computational tools that will aid in systematising the design and construction of parts and systems. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and key tips on troubleshooting and avoiding known pitfalls.Authoritative and practical, Synthetic Biology seeks to aid scientists in the further study of developing new biological components and systems.