

Preface

In recent years we have witnessed an explosion of DNA sequencing technologies that provide unprecedented insights into biology. Although this technological revolution has been driven by the biomedical sciences, it also offers extraordinary opportunities in the Earth and environmental sciences. In particular, the application of "omics" methods (genomics, transcriptomics, proteomics) directly to environmental samples offers exciting new vistas of complex microbial communities and their roles in environmental and geochemical processes. However, there is currently a lack of resources and infrastructure to educate and train geoscientists about the opportunities, approaches, and analytical methods available in the application of omic technologies to problems in the geosciences. This book aims to begin to fill this gap. Due to the rapidly advancing nature of DNA sequencing technologies, this book will almost certainly be well out of date by the time of publication. Nevertheless, my hope is that the accompanying e-book format will allow relatively frequent updates and will serve as a foundation and a gateway for students and other scientists to access this exciting field. I apologize in advance to the many researchers whose excellent work was inevitably not cited, due to either my own ignorance or constraints on space. I welcome suggestions for citations, additions, and corrections that can be incorporated into future editions.

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