

PREFACE

It has been a tremendous honour being asked by Keith Wilson, John Walker and Cambridge University Press to take on the role of editorship for this eighth edition of *Principles and Techniques*. In designing the content, we extend the long and successful tradition of this text to introduce relevant methodologies in the biochemical sciences by uniquely integrating the theories and practices that drive the fields of biology, biotechnology and medicine. Methodologies have improved tremendously over the past ten years and new strategies and protocols that once were just applied by a few pioneering laboratories are now applied routinely, accompanied by ever more fluent boundaries between core disciplines – leading to what is now called the life sciences.

In this eighth edition, all core methodologies covered in the previous edition have been kept and appropriately updated and consolidated. New chapters have been added to address the requirements of today's students and scientists, who operate in a much broader area than did the typical biochemists one or two decades ago. The contents of this text are thus structured into six areas, all of which play pivotal roles in current research: basic principles, biochemistry and molecular biology, biophysical methods, information technology, -omics methods and chemical biology. Of course, due to space restraints that help to keep this text accessible, the addition of new material required us to consolidate and carefully select content to be kept from the previous edition. These decisions have been guided by the over-arching theme of this text, namely to present principles and techniques. Importantly, our experience as teachers has always been that many undergraduates are challenged by quantitative calculations based on these principles, and hence we have continued the tradition of this text by including relevant mathematical and numerical tools as well as examples.

Indeed, new chapters on data processing, visualisation and Python have example applications that can be accessed from the CUP website to aid understanding.

Sadly, two authors of previous editions have passed away: John Fyffe died shortly after the seventh edition was launched and Alastair Aitken passed away in 2014. Also, Keith Wilson, John Walker and Robert Burns decided to retire, and we thus invited several new authors to contribute to this eighth edition.

We are grateful to the authors and publishers who have granted us permission to reproduce and adapt their figures. We further wish to express our gratitude to Sonja Biberacher, Madeleine Dallaston, Emma Klepzig, Hannah Leeson and Megan Cross who have helped tremendously with preparing figures and photographs. The manuscript and figures for this book have been compiled entirely with open-source and academic software under Linux, and we would like to acknowledge the efforts of software developers and programmers who make their products freely available.

Finally, our sincere thanks also extend to Katrina Halliday and her team at Cambridge University Press whose invaluable support has made it possible to produce this new edition.

We welcome constructive comments from all students who use this book within their studies, and from teachers and academics who adopt the book to complement their courses.

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