Book Reviews

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Elements of Evolutionary Genetics. B. Charlesworth & D. Charlesworth. Roberts & Company. 2010. 768 pages. ISBN 9780981519425. Price $80 (hardback).

On being asked to review the *Elements of Evolutionary Genetics* by Brian and Deborah Charlesworth, I felt a bit like a minor apostle being asked to peer review the New Testament. (I assume the New Testament was peer reviewed?) The *Elements of Evolutionary Genetics* is a work of biblical proportions for the age of genetics.

For much of the 20th Century, evolutionary genetics was an arcane field populated by nerdy mathematically inclined biologists. However, population genetics provides the tools necessary for analysis of gene sequence data, in particular the wealth of information now available on population variation in humans and other 'model' species. The human genome sequence, originally trumpeted as the 'blueprint' for humanity, actually makes little sense without an understanding of how and why gene sequences vary between individuals, populations and species. In the face of the avalanche of gene sequence data, population genetics has recently begun to take centre stage in biology.

In this context, the publication of this book is very timely. The Charlesworths are leaders in the field, and have covered virtually all areas of population genetic analysis, starting with the basics. Early chapters deal with the measurement of genetic variability, the action of selection and maintenance of variation. Complexity is added with succeeding chapters – such as mutation and migration, the influence of stochastic processes in finite populations and spatial structure. This gradual building from basic principles, with the simpler concepts at the beginning of each chapter leads the reader through the field.

I especially enjoyed the section on 'Testing for selection', which outlines the multitude of methods now available for detecting the influence of natural selection in DNA sequence data – I shall certainly be recommending sections such as this for graduate and undergraduate student reading in the future. If I have any grumble, it is that inevitably in such a wide-ranging book there was not enough space for any detailed critique of the topics described. In several places, I was left wanting more.

As one might expect from the authors, the book contains lots of equations. Nonetheless, the less mathematically able, such as myself, can still take a great deal from it. The text is clearly written and easy to follow, with the more complex maths set aside in text boxes. Unlike in some population genetic texts, here theory is closely intertwined with empirical examples. A nice example is the section on the evolution of sex, where case studies, especially from the complex world of plant sex, are used to highlight the theoretical ideas.

So who is likely to read this book? It is described as being aimed at 'advanced undergraduates', and it will certainly be a useful text for advanced courses in evolutionary genetics. However, I think the book will really come into its own at graduate level, where there is no other comparable work that covers such a broad range of topics. I guess that few will read it all the way through from start to finish, but anyone interested in evolution or population genetics should have a copy on their shelves. I certainly anticipate that I will use it as a reference book, for the definitions and principles underlying key concepts are more clearly outlined here than in any other single volume. In a fast-moving field, I anticipate that this book will be a key textbook for many years to come.

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Presentation Skills for Scientists. E. Zanders & L. MacLeod. Cambridge University Press. 2010. 80 pages. ISBN 9780521741033. Price £19.99 (paperback with DVD-ROM).

The last two decades have witnessed an explosion of scientific information in an academic environment that is becoming ever more complex and competitive.

Whereas 20 years ago little attention was paid to developing professional skills for young scientists, it is now widely recognized that professional presentation skills are an indispensable cornerstone of a successful scientific career. Today, most universities offer workshops or courses to help young scientists develop professional skills. *Presentation Skills for Scientists* is the most recent instructional text targeted at improving scientific presentation skills for scientists. The book results from an unusual collaboration between Edward Zanders, a biomedical research scientist who has worked both in academia and industry, and Lindsay MacLeod, a London tourist guide.

Presentation Skills for Scientists reiterates many of the pointers voiced in previous monographs, much of which is common sense – although often ignored – practical advice, such as knowing your audience, planning and rehearsing the presentation, staying within the allotted time, voice projection and eye contact with the audience, and the use of clear visual images that appropriately support the presentation. The book appears targeted to the novice speaker and heavily focused on instilling confidence in and providing encouragement for nervous speakers. In fact, an entire chapter is devoted to 'controlling nerves' and the accompanying DVD-ROM contains a substantial segment on breathing and relaxation exercises (some of which might instill panic in the audience with a desire to rush to the aid of the speaker if he or she were observed executing these exercises in a seminar room prior to the presentation). That is not to say that the emphasis on controlling nerves, which permeates most chapters of the book, is not helpful. On the contrary, the 'we have all been there, just take a deep breath and you'll be okay' mantra can be reassuring to those who are facing their first initiation in the academic arena. The emphasis on controlling nerves, voice modulation and audience contact, although important considerations in their own right, distracts from what should after all be the main focus of a scientific presentation, the organization of its content. Although the authors provide general guidelines, including advice on keeping the conclusion brief and to the point, the classic concept of 'telling what you're gonna tell 'em, then tell 'em, then tell 'em what you told them' is never placed at center stage. Although the book contains many amusing anecdotes, its impact would have benefited greatly if more relevant examples were incorporated in the text.

Nevertheless, *Presentation Skills for Scientists* is a useful resource. One of its advantages is its small size and user-friendly format. With only 68 pages (including the Index) in a wide-spaced fairly large font, the book can be read within about an hour, and there is no doubt that the reader will benefit from some of the advice presented. What sets this book, however, apart from other books on scientific presentation is the sample presentation contained on the accompanying DVD-ROM. This illustrates systematically side-by-side bad and good aspects of an imaginary presentation, a well-conceived and amusing story of the discovery of the fictitious OOPS gene on the Y-chromosome, which encodes the male-specific forgettin protein. This series of short video clips is instructive and provides a vivid demonstration of how to and how not to deliver a scientific presentation. Like its predecessors, *Presentation Skills for Scientists* dispels the myth that being a good or a poor speaker is predetermined by an immutable innate talent. The authors aptly quote Ralph Waldo Emerson, who said 'All the great speakers were bad speakers first.'

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Elements of Computational Systems Biology. Eds. H. M. Lodhi & S. Muggleton. Wiley-Blackwell. 2010. 412 pages. ISBN 9780470180938. Price $115 (hardback).

Amazon currently lists well over 100 print-format books with 'Systems Biology' in the title, a four-fold increase in four years. Whatever the reasons for this publishing boom, would-be users of such books face a daunting task identifying something appropriate. Even 'Computational Systems Biology', the title phrase of Wiley's latest offering (Lodhi & Muggleton, 2010), is rather uninformative, shared with a score of other books. It is, however, indicative that this collection of 17 contributions (corralled under rather broad section headings: 'Overview', 'Biological Network Modelling', 'Biological Network Inference', 'Genomics and Computational Systems Biology' and 'Software Tools for Systems Biology') comes from a computer-science rather than biological perspective – the editors are both in Imperial College, London's, Department of Computing. That is not to say that non-computer-scientists should steer clear – there is an element of the dating agency here – available techniques seeking partners in biological problems. I, for instance, was interested by the chapter on 'membrane computing', an area of biologically inspired computing new to me. At the same time, this book is not particularly biologist-friendly. Many of the chapters stand very close to their subjects and sometimes this is enough to turn off the general reader: The sub-section on inductive logic programming (ILP) starts by 'review[ing] the notion and terminology used in ILP', something potentially