



BOOK REVIEW

Differential Geometry of Curves and Surfaces, by Thomas Banchoff and Stephen Lovett, A K Peters Ltd., Natick 2010, xvi + 331 pp, ISBN 978-1-56881-456-8.

Differential Geometry of Manifolds, by Stephen Lovett, A K Peters Ltd., Natick 2010, xiii + 421 pp, ISBN 978-1-56881-457-5.

These are two books that together in a pair are intended to bring the reader through classical differential geometry of curves and surfaces into the modern differential geometry of manifolds. The first book, *Differential Geometry of Curves and Surfaces*, by Thomas Banchoff and Stephen Lovett, offers a complete guide for the study of classical theory of curves and surfaces and is intended as a textbook for a one semester course for undergraduates, assuming only experience in vector calculus and linear algebra. The readers are provided with computer graphics applets that can be used for computer labs, in-class illustrations, or simply as intuitive aids to support the material.

The second book, *Differential Geometry of Manifolds*, by Stephen Lovett, provides an introduction to the theory of differentiable manifolds - the natural generalization of regular curves and surfaces to higher dimensions. It is addressed to advanced undergraduate or beginning graduate readers and to be comprehensive and still only require the standard undergraduate math programs as prerequisites, three appendices provide the necessary background from topology, calculus of variations, and multilinear algebra. Neither book directly relies on the other but knowledge of the content of the first book is beneficial for the second one.

The first book contains eight chapters. In Chapters 1 through 4 the readers are provided with the local and global theory of plane and space curves. In Chapter 1 the authors present local properties of plane curves and in contrast to it in Chapter 2 they introduce global properties of plane curves. Chapter 3 is devoted to the local properties of space curves similarly to the theory of plane curves and Chapter 4 concerns global properties of space curves. In the local theory the authors introduce the fundamental notions of curvature and torsion, construct various associated objects such as the evolute, the osculating circle, the osculating sphere, and formulate the fundamental theorem of plane or space curves. The global theory presents