

Order your  
Inspection Copy now

You may request an inspection copy of a textbook via the web, email, fax, or post:



[www.cambridge.org/textbooks](http://www.cambridge.org/textbooks)



[inspectioncopy@cambridge.org](mailto:inspectioncopy@cambridge.org)



fax +44 (0)1223 326111



Please complete this form and return it to:

The Academic TB Dept, Cambridge University Press,  
Cambridge CB2 2RU, UK

Title	ISBN
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

First Name  Surname

Department

Academic Institution

Address

Postcode  Country

Email address

Course Name(s)

Level  Number of Students

Course Date  Local Bookseller(s)

#### Our inspection copy policy

In the UK, Australia and New Zealand books are sent out for a maximum of 28 days, after which they must be returned or paid for if they are not adopted for a course of 12 or more students. Outside the UK, Australia and New Zealand, inspection copies are sent as desk copies free of charge. Not all titles are available for inspection in all countries. Lecturers must complete and return the Reply Slip enclosed with each book.

Books not yet published will be sent in the month of publication.

#### Purchasing Copies

Should you wish to purchase copies of this book, you can do so online via our website at [www.cambridge.org/order](http://www.cambridge.org/order) or by phone +44 (0) 1223 326050, fax +44 (0) 1223 326111, or email [directcustserve@cambridge.org](mailto:directcustserve@cambridge.org). When ordering, please quote the catalogue code.

For information about our privacy and data protection policy, please visit <http://uk.cambridge.org/privacy/> or email [mlist@cambridge.org](mailto:mlist@cambridge.org)

Catalogue code: 310042

Other Essential Textbooks in  
this area from Cambridge

## Maths: A Student's Survival Guide

A Self-Help Workbook for Science and Engineering Students

Second edition

Jenny Olive

From reviews of the first edition:

'... a friendly book written in an engaging style ...'

*The Times Higher Education Supplement*

2003 276 x 219 mm 648pp 592 line diagrams 14 tables  
770 exercises

0 521 01707 6 Paperback £19.99

For more information please visit:

[www.cambridge.org/olive](http://www.cambridge.org/olive)

## Mathematical Methods for Physics and Engineering

A Comprehensive Guide

Second edition

K. F. Riley, M. P. Hobson and S. J. Bence

From reviews of the first edition:

'... clearness of presentation, comprehensiveness and value for money'

*European Journal of Physics*

2002 247 x 174 mm 1256pp 200 line diagrams 20 tables  
750 exercises

0 521 89067 5 Paperback £30.00

For more information please visit:

[www.cambridge.org/0521890675](http://www.cambridge.org/0521890675)



**CAMBRIDGE**  
UNIVERSITY PRESS  
[www.cambridge.org](http://www.cambridge.org)

ISBN 0-521-94968-8



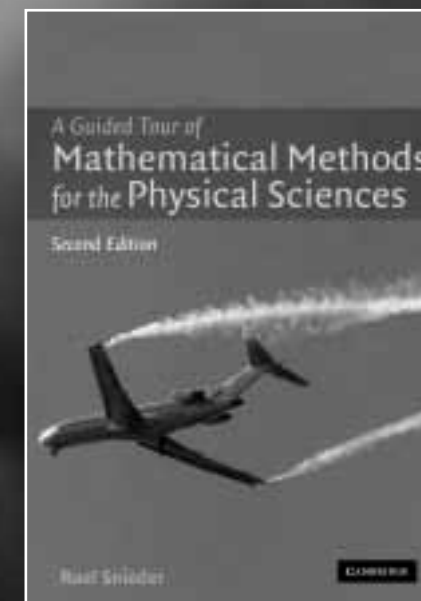
Printed in the United Kingdom  
at the University Press, Cambridge

September 2004

CAMBRIDGE

# A Guided Tour of Mathematical Methods

For the Physical Sciences  
Second edition



Roel Snieder

Order your inspection copy now  
[www.cambridge.org/textbooks](http://www.cambridge.org/textbooks)

Cambridge Textbooks  
... all your students need to know

# A Guided Tour of Mathematical Methods

For the Physical Sciences

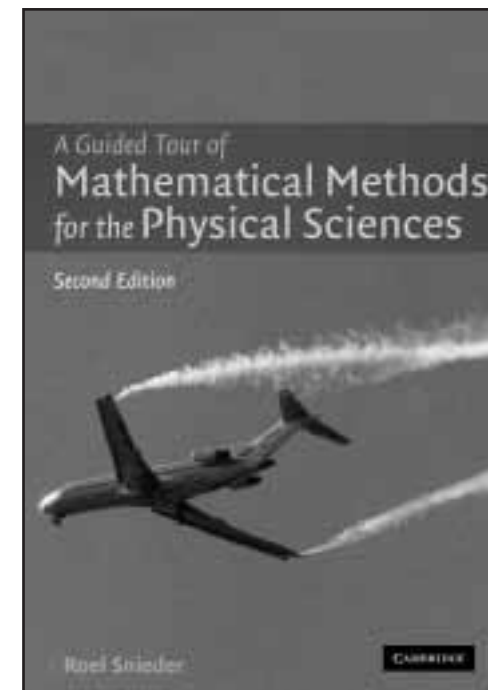
Second edition

Roel Snieder, *Colorado School of Mines*

Mathematical methods are essential tools for all physical scientists. This second edition provides a comprehensive tour of the mathematical knowledge and techniques that are needed by students in this area. In contrast to more traditional textbooks, all the material is presented in the form of problems. Within these problems the basic mathematical theory and its physical applications are well integrated. The mathematical insights that the student acquires are therefore driven by their physical insight. Topics that are covered include vector calculus, linear algebra, Fourier analysis, scale analysis, complex integration, Green's functions, normal modes, tensor calculus, and perturbation theory. The second edition contains new chapters on dimensional analysis, variational calculus, and the asymptotic evaluation of integrals. This book can be used by undergraduates, and lower-level graduate students in the physical sciences. It can serve as a stand-alone text, or as a source of problems and examples to complement other textbooks.

## Contents

1. Introduction; 2. Dimensional analysis; 3. Power series; 4. Spherical and cylindrical coordinates; 5. The gradient; 6. The divergence of a vector field; 7. The curl of a vector field; 8. The theorem of Gauss; 9. The theorem of Stokes; 10. The Laplacian; 11. Conservation laws; 12. Scale analysis; 13. Linear algebra; 14. The Dirac delta function; 15. Fourier analysis; 16. Analytic functions; 17. Complex integration; 18. Green's functions: principles; 19. Green's functions: examples; 20. Normal modes; 21. Potential theory; 22. Cartesian tensors; 23. Perturbation theory; 24. Asymptotic evaluation of integrals; 25. Variational calculus; 26. Epilogue, on power and knowledge; References.



- All material presented in the form of problems
- Mathematical insights are gained by getting the reader to develop answers themselves
- Many applications given

[www.cambridge.org/0521834929](http://www.cambridge.org/0521834929)

2004 247 x 174 mm 510pp 126 line diagrams 6 half-tones  
6 tables  
0 521 83492 9 Hardback c. £30.00

order your inspection copy now

From reviews of the first edition:

'... a splendid book, quite a delight to see mathematical models from a different perspective ... excellent.'