



Earth & Environmental Science

Springer and Palgrave Essential Textbooks

All Free Access until July 31st, 2020

My Catalog

Springer Nature Customer Service Center GmbH

<https://www.springer.com/booksellers>

row-booksellers@springernature.com

Tel +49 (0)6221 345-4301

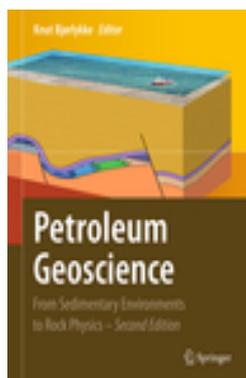
15-17 Tiergartenstrasse

Heidelberg 69121

Germany

Earth Sciences.....	3
Geology.....	3
Hydrogeology.....	3
Oceanography.....	3
Engineering.....	4
Civil Engineering.....	4
Environment.....	4
Environment (general).....	4
Sustainable Development.....	5
Geography.....	5
Geographical Information Systems / Cartography.....	5

Titles are sorted by author and title within the discipline.
Please use springer.com to search for titles or authors.
Check updated prices on our web site.



ISBN : 978-3-642-34131-1

Bjørlykke, Knut (Ed.), University of Oslo, Oslo, Norway

Petroleum Geoscience

From Sedimentary Environments to Rock Physics

- Provides state-of-the-art knowledge required by geoscientists seeking a career in the petroleum industry
- Written by authors with many years of professional experience
- A valuable primer for tackling much more specialized, in-depth information and issues related to exploration and recovery of oil and gas

This comprehensive textbook presents an overview of petroleum geoscience for geologists active in the petroleum industry, while also offering a useful guide for students interested in environmental geology, engineering geology and other aspects of sedimentary geology. In this second edition, new chapters have been added and others expanded, covering geophysical methods in general and electromagnetic exploration methods in particular, as well as reservoir modeling and production, unconventional resources and practical petroleum exploration.

Contents

Introduction to Petroleum Geology.- Introduction to Sedimentology.- Sedimentary Geochemistry.- Sandstones and Sandstone Reservoirs.- Carbonate Sediments.- Mudrocks, Shales, Silica Deposits and Evaporites.- Stratigraphy.- Sequence Stratigraphy, Seismic Stratigraphy.- Heat Transport in Sedimentary Basins.- Subsurface Water and Fluid Flow in Sedimentary Basins.- Introduction to Geomechanics: Stress and Strain in Sedimentary Basins.- The Structure and Hydrocarbon Traps of Sedimentary Basins.- Compaction of Sedimentary Rocks Including Shales, Sandstones and Carbonates.- Source Rocks and Petroleum Geochemistry.- Petroleum Migration.- Well Logging: ...

Fields of Interest

Geology

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2015,XIII, 662 p. 501 illus., 409 illus. in color. Hardcover

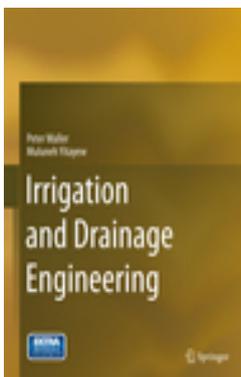
Medium Type

Book

Imprint

Springer

[Order Quantity](#)



ISBN : 978-3-319-05698-2

Waller, Peter, Yitayew, Muluneh, University of Arizona, Tucson, AZ, USA

Irrigation and Drainage Engineering

- Suitable for students as well as engineers and practitioners in the design of irrigation and drainage systems
- Provides students with modern tools for design - Excel worksheets and VBA
- Emphasizes standard design practices as approved by Natural Resources Conservation Service and American Society of Agricultural and Biosystems Engineers

This textbook focuses specifically on the combined topics of irrigation and drainage engineering. It emphasizes both basic concepts and practical applications of the latest technologies available. The design of irrigation, pumping, and drainage systems using Excel and Visual Basic for Applications programs are explained for both graduate and undergraduate students and practicing engineers. The book emphasizes environmental protection, economics, and

engineering design processes. It includes detailed chapters on irrigation economics, soils, reference evapotranspiration, crop evapotranspiration, pipe flow, pumps, open-channel flow, ...

Contents

Introduction.- Economics.- Soils.- Water and Salinity Stress.- Reference Evapotranspiration.- Crop Evapotranspiration.- Spatial and Temporal Variation.- Pipes.- Pumps.- Groundwater.- Open Channel Flow.- Center Pivot Irrigation.- Turf Irrigation.- Agricultural Sprinkler Irrigation.- Landscape Irrigation Components.- Landscape Irrigation Design and Management.- Agricultural Drip Irrigation.- Drip Irrigation System Economics.- Chemigation.- Surface Irrigation.- Greenhouse Hydroponic Irrigation.- Low Head Bubbler Irrigation.- Wastewater Contaminants.- Waste Degradation and Loading Rates.- Soil Salinity and Nitrogen.- Water and Solute Mass ...

Fields of Interest

Hydrogeology; Water Industry/Water Technologies; Soil Science & Conservation; Geoengineering, Foundations, Hydraulics

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2016,XVI, 742 p. 575 illus., 390 illus. in color. With online files/update. Hardcover

Medium Type

Book w. online files / update

Imprint

Springer

[Order Quantity](#)



ISBN : 978-3-319-51411-6

Seibold, Eugen, Berger, Wolfgang, Freiburg, Germany

The Sea Floor

An Introduction to Marine Geology

- 4th Edition of the highly successful Seibold/Berger text on marine geology
- With over 200 illustrations and a comprehensive appendix
- Spans the bridge from oceanography to earth system science

This textbook deals with the most important items in Marine Geology, including some pioneer work. The list of topics has grown greatly in the last few decades beyond the items identified by Eugen Seibold as central and now includes prominently such things as methane and climate change; that is, the carbon cycle and the Earth system as a whole. Relevant geophysical, geochemical, sedimentological and paleontological methods are shortly described. They should allow the reader to comment on new results about plate tectonics, marine sedimentation from the coasts to the deep sea, climatological aspects, paleoceanology and the use of the sea floor. ...

Contents

1 Origin and Morphology of Ocean Basins.- 2 Origin and Morphology of Ocean Margins.- 3 Sources and Composition of Marine Sediments.- 4 Effects of Waves and Currents.- 5 Sea Level Processes and Effects of Sea Level Change.- 6 Productivity and Benthic Organisms — Distribution, Activity, and Environmental Reconstruction.- 7 Imprint of Climatic Zonation on Marine Sediments.- 8 Deep-Sea Sediments — Patterns, Processes, and Stratigraphic Methods.- 9 Paleoceanography — The Deep-Sea Record.- 10 Resources from the Ocean Floor.- Epilog.- List of Books and Symposia.- A1 Conversion Between Common US Units and Metric Units.- A2 Topographic Statistics.- ...

Fields of Interest

Oceanography; Sedimentology; Ecology; Geoecology/Natural Processes; Marine & Freshwater Sciences

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

4th ed. 2017,XIII, 268 p. 245 illus., 133 illus. in color.(Springer Textbooks in Earth Sciences, Geography and Environment) Hardcover

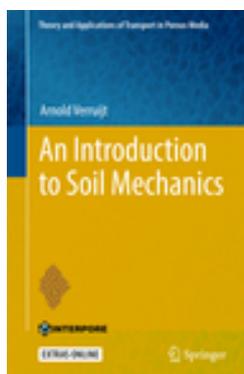
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-3-319-61184-6

Verruijt, Arnold, Delft, The Netherlands

An Introduction to Soil Mechanics

- Presents soil mechanics from an engineering mechanics viewpoint
- Provides clear presentations, with worked examples, exercises, illustrations, and computer programs
- Includes references to additional material (illustrations, videos) on the internet

This textbook offers a superb introduction to theoretical and practical soil mechanics. Special attention is given to the risks of failure in civil engineering, and themes covered include stresses in soils, groundwater flow, consolidation, testing of soils, and stability of slopes. Readers will learn the major principles and methods of soil mechanics, and the most important methods of determining soil parameters both in the laboratory and in situ. The basic principles of applied mechanics, that are frequently used, are offered in the appendices. The author's considerable experience of teaching soil mechanics is evident in the many features ...

Contents

1. Introduction.- 2. Classification.- 3. Particles, water, air.- 4. Stresses in soils.- 5. Stresses in a layer.- 6. Darcy's law.- 7. Permeability.- 8. Groundwater flow.- 9. Flotation.- 10. Flow net.- 11. Flow towards wells.- 12. Stress strain relations.- 13. Tangent modulus.- 14. One-dimensional compression.- 15. Consolidation.- 16. Analytical solution.- 17. Numerical solution.- 18. Consolidation coefficient.- 19. Creep.- 20. Shear strength.- 21. Triaxial test.- 22. Shear test.- 23. Pore pressures.- 24. Undrained behaviour of soils.- 25. Stress paths.- 26. Elastic stresses and deformations.- 27. Boussinesq.- 28.

Newmark.- 29. Flamant.- 30. ...

Fields of Interest

Civil Engineering; Hydrogeology; Soil Science & Conservation; Geotechnical Engineering & Applied Earth Sciences

Content Level

Lower undergraduate

Product category

Undergraduate textbook

Available

Bibliography

1st ed. 2018,XIII, 420 p. 235 illus., 228 illus. in color. With online files/update.(Theory and Applications of Transport in Porous Media, Volume 30) Hardcover

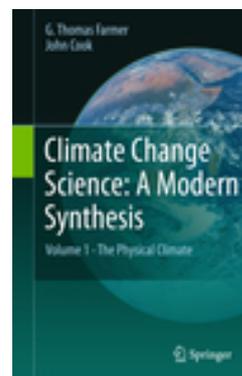
Medium Type

Book w. online files / update

Imprint

Springer

Order Quantity



ISBN : 978-94-007-5756-1

Farmer, G. Thomas, Cook, John, Farmer Enterprises, Las Cruces, NM, USA

Climate Change Science: A Modern Synthesis

Volume 1 - The Physical Climate

- Volume One of a two-volume treatment of climate change science designed for an introductory science course
- Describes the discipline of Climate Change Science, and individual climate change scientists whose expertise spans Earth history, geology, geography, biology, oceanography, astronomy, mathematics, physics, chemistry, engineering and more
- Examines evidence of global warming that has entered mainstream discussions of climate change

An introduction to the principles of climate change science with an emphasis on the empirical evidence for climate change and a warming world. Additional readings are given at the end of each chapter. A list of "Things to Know" opens each chapter. Chapters are arranged so that the student is first introduced to the scientific method(s), examples of the use of the scientific method from other sciences drawn from the history of science with an emphasis on climate science. Climate science is treated in each chapter based on the premise of global warming. Chapter treatments on the atmosphere, biosphere, geosphere, hydrosphere, and anthroposphere ...

Contents

1. Introduction.- Part I - Scientific principles and the scientific method.- 2. scientific principles.- 3. The scientific method and its use.- Part II - Overview of climate change science.- 4. Earth's energy budget.- 5. Climate change trends.- 6. Earth's surface temperature.- 7. Climate change science as earth science.- Part III - Earth's atmosphere.- 8. Introduction to earth's atmosphere.- 9. Carbon dioxide, other greenhouse gases, and the carbon cycle.- 10. Earth's albedo, radiative forcing and climate change.- 11. Atmospheric circulation and climate.- Part IV - The world ocean and climate.- 12. The world ocean.- 13. Ocean heat content ...

Fields of Interest

Environment, general; Climate Change/Climate Change Impacts; Earth Sciences, general; Lifelong Learning/Adult Education; Geography, general; Organic Chemistry

Content Level

Lower undergraduate

Product category

Undergraduate textbook

Available

Bibliography

2013,XXVIII, 564 p. Hardcover

Medium Type

Book

Imprint

Springer

[Order Quantity](#)



ISBN : 978-94-017-7241-9

Heinrichs, H., Martens, P., Michelsen, G., Wiek, A. (Eds.), Leuphana University, Lüneburg, Germany

Sustainability Science

An Introduction

- Equips readers with key perspectives and topics of inter- and transdisciplinary sustainability science
- Helps readers to get a quick and easy accessible overview of sustainability science through the book's concise and didactical presentation
- Written by an international team of authors teaching at leading institutions of sustainability science

This textbook provides a comprehensive compilation of conceptual perspectives, methodological approaches and empirical insights of inter- and transdisciplinary sustainability science. Written by an international team of authors from leading sustainability institutions, the textbook covers key perspectives and topics of the scientific discourse on sustainable development. More than two decades after conceptualizing sustainability as societal guiding vision and regulative idea the necessity of concretizing and realizing sustainability in societal praxis is bigger than ever. Sharply improved individual and societal sustainable decision-making ...

Contents

Introduction.- Sustainable Development – Background and Context.- Transformational Sustainability.-Research Methodology.- Green and Sustainable Chemistry.- Sustainability and Ecosystems.-Sustainability Assessment of Technologies.- Corporate Sustainability Management.- Sustainable Development in Economics.- Sustainable Development and Law.- Finance and Sustainability.-Sustainability – Politics and Governance.- Sustainability Communication.- Sustainability and Science Policy.- Justice and Sustainability.- Sustainability Ethics.- Ocean Space and Sustainability.- Sustainable Landscape Development.- Sustainable Development and Material Flows.- ...

Fields of Interest

Sustainable Development; Geoecology/ Natural Processes; Social Sciences, general

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2016,XII, 367 p. 63 illus., 33 illus. in color. Hardcover

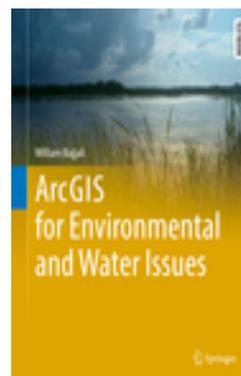
Medium Type

Book

Imprint

Springer

[Order Quantity](#)



ISBN : 978-3-319-61157-0

Bajjali, William, University of Wisconsin – Superior, Superior, WI, USA

ArcGIS for Environmental and Water Issues

- Teaches applied GIS techniques using real-world examples of analysis and problem solving from the author's work in earth sciences, ecology, surface water and groundwater
- Covers cutting-edge technologies such as ArcPad Mobile GIS
- Each chapter contains several applied exercises and case studies that illustrate each the use of each ArcGIS tool

This textbook is a step-by-step tutorial on the applications of Geographic Information Systems (GIS) in environmental and water resource issues. It provides information about GIS and its applications, specifically using the most advanced ESRI GIS technology and its extensions. Eighteen chapters cover GIS applications in the field of earth sciences and

water resources in detail from the ground up. Author William Bajjali explains what a GIS is and what it is used for, the basics of map classification, data acquisition, coordinate systems and projections, vectorization, geodatabase and relational database, data editing, geoprocessing, ...

Contents

1. Introduction.- 2. Working with ArcGIS and Map Classification.- 3. Data Acquisition and Data Creation.- 4. Coordinate Systems and Projections.- 5. Query Using SQL.- 6. Geodatabase Creation.- 7. Data Editing and Topology.- 8. Geoprocessing.- 9. Site Suitability and Data Modeling.- 10. Geocoding.- 11. Working with Raster.- 12. Spatial Interpolation.- 13. Watershed Delineation.- 14. Geostatistical Analysis.- 15. Network Analyst.- 16. 3-D Analyst.- 17. ArcPad (mobile GIS).

Fields of Interest

Geographical Information Systems/ Cartography; Hydrogeology; Hydrology/ Water Resources; Monitoring/Environmental Analysis; Regional/Spatial Science

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2018,XVIII, 353 p. 308 illus. in color. (Springer Textbooks in Earth Sciences, Geography and Environment) Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-3-319-18397-8

Tateosian, Laura, North Carolina State University, Raleigh, NC, USA

Python For ArcGIS

- Illustrates concepts with examples that solve real geoprocessing problems
- Emphasizes batch processing for streamlining workflows
- Provides over 200 sample Python scripts and 175 exercises

This book introduces Python scripting for geographic information science (GIS) workflow optimization using ArcGIS. It builds essential programming skills for automating GIS analysis. Over 200 sample Python scripts and 175 classroom-tested exercises reinforce the learning objectives. Readers will learn to: • Write and run Python in the ArcGIS Python Window, the PythonWin IDE, and the PyScripter IDE • Work with Python syntax and data types • Call ArcToolbox tools, batch process GIS datasets, and manipulate map documents using the arcpy package • Read and modify proprietary and ASCII text GIS data • Parse HTML web pages and KML datasets • ...

Contents

Introduction.- Beginning Python.- Basic data types: numbers and strings.- Basic data types: lists and tuples.- Preparing for Python in ArcGIS.- Calling tools with arcpy.- Getting user input.- Controlling flow.- Decision-making and describing data.- Repetition: Looping for geoprocessing.- Batch geoprocessing.- Additional looping functions.- Debugging.- Error handling.- User-defined functions.- User-defined modules.- Reading and Writing with Cursors.- Dictionaries.- Reading & writing text files.- Working with HTML & KML.- Classes.- User interfaces for file and folder selection.- ArcGIS Python GUIs.- Mapping module.

Fields of Interest

Geographical Information Systems/ Cartography; Programming Languages, Compilers, Interpreters; Information Systems Applications (incl. Internet); Earth Sciences, general

Content Level

Research

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2015,XVI, 538 p. 167 illus., 148 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer