Sedimentary Petrology An Introduction To The Origin Of Sedimentary Rocks

Syllabus Introduction to Sedimentary Petrology (inleiding Sediment Petrologie, Deel 1 - Propedeuse).Sedimentary PetrologyPetrology of Sedimentary RocksSedimentary PetrographySediment ProvenanceSedimentary PetrologyMud and MudstonesSedimentary PetrologySedimentary GeologySedimentology and Sedimentary BasinsSedimentary PetrologyGeological Field TechniquesPlate Tectonics: A Very Short IntroductionPractical SedimentologyCarbonate SedimentologyRock-forming MineralsIntroduction to Mineralogy and PetrologySedimentary PetrologyEarth MaterialsSedimentary PetrologySedimentary Petrology ElbsSedimentary Rocks in the FieldEssentials of Igneous and Metamorphic PetrologyPetrologyPrinciples of Igneous and Metamorphic PetrologySedimentology and StratigraphyIntroduction to Mineralogy and PetrologyEarth MaterialsIntroduction to Sedimentology, 2e (PB)Sedimentary Rocks in the FieldIntroduction to Mineralogy and PetrologySedimentary GeologyEarth MaterialsAn Introduction to Sedimentary Petrology with Special Reference to Loose Detrital Deposits and Their Correlation by Petrographic MethodsPrinciples of Sedimentology and StratigraphyThe Principles of PETROLOGYBackscattered Scanning Electron Microscopy and Image Analysis of Sediments and Sedimentary RocksGeochemistry of Sedimentary CarbonatesIntroduction to SedimentologyProcedures in Sedimentary Petrology

Syllabus Introduction to Sedimentary Petrology (inleiding Sediment Petrologie, Deel 1 - Propedeuse).

Sedimentary Petrology

A concise account of all major branches of sedimentary geology, highlighting the connecting links between them. Introduction; Processes of sedimentation; Sedimentary texture; Sedimentary petrology; Hydraulics, sediment transportation and structures of mechanical origin; Sedimentary environments and facies; Tectonics and sedimentation; Stratigraphy and sedimentation; Basin analysis: A synthesis; References; Index.

Petrology of Sedimentary Rocks

The 1960s revealed a new and revolutionary idea in geological thought: that the continents drift with respect to one another. After having been dismissed for decades as absurd, the concept gradually became part of geology's basic principles. We now know that the Earth's crust and upper mantle consist of a small number of rigid plates that move, and there are significant boundaries between pairs of plates, usually known as earthquake belts. Plate tectonics now explains much of the structure and phenomena we see today: how oceans form, widen, and disappear; why earthquakes and volcanoes are found in distinct zones which follow plate boundaries; how the great mountain ranges of the world were built. The impact of plate tectonics is studied closely as these processes continue: the

Himalaya continues to grow, the Atlantic is widening, and new oceans are forming. In this Very Short Introduction Peter Molnar provides a succinct and authoritative account of the nature and mechanisms of plate tectonics and its impact on our understanding of Earth. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Sedimentary Petrography

Key concepts in mineralogy and petrology are explained alongside beautiful full-color illustrations, in this concisely written textbook.

Sediment Provenance

Introduction to Mineralogy and Petrology, Second Edition presents the essentials in an approach that is accessible to industry professionals, academic researchers and students. The book emphasizes the relationship between rocks and minerals, from the structures created during rock formation straight through to the economics of mineral deposits. While petrology is classified on the lines of geological evolution and rock formation, mineralogy speaks to physical and chemical properties, uses and global occurrences. The book's primary goal is for the reader to identify minerals in all respects, including host-rocks and mineral deposits, mineral-exploration, resources, extraction processes, and their further usage. To help provide a comprehensive analysis across ethical and socioeconomic dimensions, a separate chapter describes the hazards associated with minerals, rock and mineral industries, and the consequences to humanity that includes remedies and case studies. Addresses the full scope of core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and soils, definition, origin, structure and classification of igneous, sedimentary and metamorphic rocks Features more than 250 figures, illustrations and color photographs to vividly explore the fundamental principles of mineralogy and petrology Offers a holistic approach to both subjects, beginning with the formation of geologic structures that is followed by the hosting of mineral deposits and the exploration and extraction of lucrative, usable products that improve the health of global economies Includes new content on minerals and petrology in extraterrestrial environments and case studies on hazards in the mining industry

Sedimentary Petrology

This concise treatment of the fundamental principles of sedimentology and stratigraphy highlights the important physical, chemical, biological and stratigraphic characteristics of sedimentary rocks. It emphasizes the ways in which the study of sedimentary rocks is used to interpret depositional environments, changes in ancient sea level, and other intriguing aspects of Earth's history.

Mud and Mudstones

The earlier editions of this book have been used by successive generations of students for more than 20 years, and it is the standard text on the subject in most British universities and many others throughout the world. The study of sediments and sedimentary rocks continues to be a core topic in the Earth Sciences and this book aims to provide a concise account of their composition, mineralogy, textures, structures, diagenesis and depositional environments. This latest edition is noteworthy for the inclusion of 16 plates with 54 colour photomicrographs of sedimentary rocks in thin-section. These bring sediments to life and show their beauty and colorful appearance down the microscope; they will aid the student enormously in laboratory petrographic work. The text has been revised where necessary and the reference and further reading lists brought up-to-date. New tables have been included to help undergraduates with rock and thin-section description and interpretation. New 16-page colour section will mean students do not need to buy Longman Atlas All illustrations redrawn to higher standard Complete revision of text - new material on sedimentary geochemistry, etc

Sedimentary Petrology

With more than 192 full-color illustrations, this atlas permits virtually first-hand observations through a petrographic microscope of the most important and representative classes of sedimentary rock. Nine major sedimentary rock groups, such as sandstones, rudaceous rock, argillaceous rock, volcaniclastic rock, dolomites, siliceous rock, phosphorites, ironstones, and evaporites. An indispensable reference for professional geologists and undergraduate and graduate students enrolled in sedimentary petrology or petrography courses.

Sedimentary Geology

Sedimentology and Sedimentary Basins

Sedimentology is a core discipline of earth and environmentalsciences. It enquires the origins, transport and deposition ofmineral sediment on the Earth's surface. The subject is a linkbetween positive effects arising from the building of relief bytectonics and the negative action of denudation in drainagecatchments and tectonic subsidence in sedimentary basins. The author addresses the principles of the subject, emphasisingthe advantages of a general science approach and the importance ofunderstanding modern processes. Sedimentology and SedimentaryBasins is not an encyclopaedia, but attempts to stimulateinterdisciplinary thought across the whole subject area and relateddisciplines. The book has been designed to meet the needs of earthand environmental science undergraduates.

Sedimentary Petrology

An accessible and engaging introductory text for geology majors, the book covers both sedimentary rocks and stratigraphy. Sedimentary Geology utilizes important current research in tectonics and sedimentation and focuses on crucial geological principles. The book covers a wide range of topics, including trace fossils,

mudrocks, diagentetic structures, and seismic stratigraphy. Contributions from chemistry, physics, and structure are drawn upon throughout the book.

Geological Field Techniques

Introduction to Mineralogy and Petrology presents the essentials of both disciplines through an approach accessible to industry professionals, academic researchers, and students. Mineralogy and petrology stand as the backbone of the geosciences. Detailed knowledge of minerals and rocks and the process of formation and association are essential for practicing professionals and advanced students. This book is designed as an accessible, step-by-step guide to exploring, retaining, and implementing the core concepts of mineral and hydrocarbon exploration, mining, and extraction. Each topic is fully supported by working examples, diagrams and full-color images. The inclusion of petroleum, gas, metallic deposits and economic aspects enhance the book's value as a practical reference for mineralogy and petrology. Authored by two of the world's premier experts, this book is a must for any young professional, researcher, or student looking for a thorough and inclusive guide to mineralogy and petrology in a single source. Authored by two of the world's experts in mineralogy and petrology, who have more than 70 years of experience in research and instruction combined Addresses the full scope of the core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and soils, definition, origin, structure and classification of igneous, sedimentary and metamorphic rocks Features more than 150 figures, illustrations, and color photographs to vividly explore the fundamental principles of mineralogy and petrology Offers a holistic approach to both subjects, beginning with the formation of geologic structures followed by the hosting of mineral deposits and concluding with the exploration and extraction of lucrative, usable products to improve the health of global economies

Plate Tectonics: A Very Short Introduction

Practical Sedimentology

Carbonate Sedimentology

Rock-forming Minerals

Sediment Provenance: Influences on Compositional Change from Source to Sink provides a thorough and inclusive overview that features data-based case studies on a broad range of dynamic aspects in sedimentary rock structure and deposition. Provenance data plays a critical role in a number of aspects of sedimentary rocks, including the assessment of palaeogeographic reconstructions, the constraints of lateral displacements in orogens, the characterization of crust which is no longer exposed, the mapping of depositional systems, sub-surface correlation, and in predicting reservoir quality. The provenance of fine-grained sediments—on a global scale—has been used to monitor crustal evolution, and sediment transport is

paramount in considering restoration techniques for both watershed and river restoration. Transport is responsible for erosion, bank undercutting, sandbar formation, aggradation, gullying, and plugging, as well as bed form migration and generation of primary sedimentary structures. Additionally, the quest for reservoir quality in contemporary hydrocarbon exploration and extraction necessitates a deliberate focus on diagenesis. This book addresses all of these challenges and arms geoscientists with an all-in-one reference to sedimentary rocks, from source to deposition. Provides the latest data available on various aspects of sedimentary rocks from their source to deposition Features case studies throughout that illustrate new data and critical analyses of published data by some of the world's most pre-eminent sedimentologists Includes more than 150 illustrations, photos, figures, and diagrams that underscore key concepts

Introduction to Mineralogy and Petrology

The earlier editions of this book have been used by successivegenerations of students for more than 20 years, and it is thestandard text on the subject in most British universities and manyothers throughout the world. The study of sediments and sedimentary rocks continues to be acore topic in the Earth Sciences and this book aims to provide aconcise account of their composition, mineralogy, textures,structures, diagenesis and depositional environments. This latest edition is noteworthy for the inclusion of 16 plateswith 54 colour photomicrographs of sedimentary rocks inthin-section. These bring sediments to life and show their beautyand colorful appearance down the microscope; they will aid thestudent enormously in laboratory petrographic work. The text hasbeen revised where necessary and the reference and further readinglists brought up-to-date. New tables have been included to helpundergraduates with rock and thin-section description andinterpretation. New 16-page colour section will mean students do not need tobuy Longman Atlas All illustrations redrawn to higher standard Complete revision of text - new material on sedimentarygeochemistry, etc

Sedimentary Petrology

Designed specifically for one-semester courses, this beautifully illustrated textbook explains the key concepts in mineralogy and petrology.

Earth Materials

N this book the task of summarising modern petrology I from the genetic standpoint has been attempted. The scale of the work is small as compared with the magni tude of its subject, but it is nevertheless believed that the field has been reasonably covered. In conformity with the genetic viewpoint petrology, as contrasted with petrography, has been emphasised throughout; and purely descriptive mineralogical and petrographical detail has been omitted. Every petrologist who reads this book will recognise the author's indebtedness to Dr. A. Harker and Dr. A. Holmes, among British workers; to Prof. R. A. Daly, Dr. H. S. Washington, and Dr. N. L. Bowen, among American petrologists; and to Prof. J. H. L. Vogt, Prof. V. M. Goldschmidt, Prof. A. Lacroix, and Prof. P. Niggli. among European investigators. The emphasis laid on modern views, and the relative poverty of

references to the works of the older generation of petrologists, does not imply any disrespect of the latter. It is due to recognition of the desirability of affording the petrological student a newer and wider range of reading references than is usually supplied in this class of work; for refer ences tend to become stereotyped as well as text and illustrations. Furthermore it is believed that all that is good and living in the older work has been incorporated, consciously or unconsciously, in the newer.

Sedimentary Petrology

Introduction to Mineralogy and Petrology presents the essentials of both disciplines through an approach accessible to industry professionals, academic researchers, and students. Mineralogy and petrology stand as the backbone of the geosciences. Detailed knowledge of minerals and rocks and the process of formation and association are essential for practicing professionals and advanced students. This book is designed as an accessible, step-by-step guide to exploring, retaining, and implementing the core concepts of mineral and hydrocarbon exploration, mining, and extraction. Each topic is fully supported by working examples, diagrams and full-color images. The inclusion of petroleum, gas, metallic deposits and economic aspects enhance the book's value as a practical reference for mineralogy and petrology. Authored by two of the world's premier experts, this book is a must for any young professional, researcher, or student looking for a thorough and inclusive guide to mineralogy and petrology in a single source. Authored by two of the world's experts in mineralogy and petrology, who have more than 70 years of experience in research and instruction combined Addresses the full scope of the core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and soils, definition, origin, structure and classification of igneous, sedimentary and metamorphic rocks Features more than 150 figures, illustrations, and color photographs to vividly explore the fundamental principles of mineralogy and petrology Offers a holistic approach to both subjects, beginning with the formation of geologic structures followed by the hosting of mineral deposits and concluding with the exploration and extraction of lucrative, usable products to improve the health of global economies

Sedimentary Petrology Elbs

Clear writing and analysis of the broad spectrum of processes that produce shale are coupled with well-captioned 150 illustrations, 40 tables, boxed technical details, glossary and appendices. Recounts the step-by-step evolution and stages of shal, enabling readers to master the basics and to dig yet deeper into their origin, practical implications and relationship to earth history. Background information appears in appendices (Clay Mineralogy, Isotopes, Petrology, etc.); technicial details in high-lighted boxes, and definitions of 300+ terms in the Glossary.

Sedimentary Rocks in the Field

A concise summary that uses abundant images to illustrate the type of information backscattered scanning electron microscopy (BSE) yields. Lucidly written, this book will be ideal for researchers and graduate students.

Essentials of Igneous and Metamorphic Petrology

The earlier editions of this book have been used by successive generations of students for more than 20 years, and it is the standard text on the subject in most British universities and many others throughout the world. The study of sediments and sedimentary rocks continues to be a core topic in the Earth Sciences and this book aims to provide a concise account of their composition, mineralogy, textures, structures, diagenesis and depositional environments. This latest edition is noteworthy for the inclusion of 16 plates with 54 colour photomicrographs of sedimentary rocks in thin-section. These bring sediments to life and show their beauty and colorful appearance down the microscope; they will aid the student enormously in laboratory petrographic work. The text has been revised where necessary and the reference and further reading lists brought up-to-date. New tables have been included to help undergraduates with rock and thin-section description and interpretation. New 16-page colour section will mean students do not need to buy Longman Atlas All illustrations redrawn to higher standard Complete revision of text - new material on sedimentary geochemistry, etc

Petrology

Sedimentology has neither been adequately popularized nor This book begins with a consideration of the complex end commonly taught as an interdisciplinary subject, and many product of processes and materials, the sedimentary environ workers in the areas of modem environment studies have very ment. It then proceeds to discuss the processes and materials limited knowledge of sedimentology. Practical Sedimentol themselves. The emphasis is on geological interpretations of ogy (henceforth PS) is designed to provide an introduction and ancient deposits, but most discussions are also relevant to review of principles and interpretations related to sedimentary modem sediments and can be used to predict environmental processes, environments, and deposits. Its companion volume, changes. A basic knowledge of geological jargon is antici Analytical Sedimentology (henceforth AS), provides "cook pated for users of this book; we try to define most of the more book recipes" for common analytical procedures dealing with esoteric terms in context, but if there are additional incom sediments, and an introduction to the principles and reference prehensible terms, refer to Bates and Jackson's Glossary of sources for procedures that generally would be performed by Geology (AGI, 1987). specialist consultants or commercial laboratories. Specialist sedimentologists will find in them useful reviews, whereas sci ACKNOWLEDGMENTS entists from other disciplines will find in them concepts and procedures that may contribute to an expanded knowledge of Many chapter drafts ofPS were critically reviewed by Dr. M.

Principles of Igneous and Metamorphic Petrology

Sedimentology and Stratigraphy

Advanced textbook outlining the physical, chemical, and biological properties of sedimentary rocks through petrographic microscopy, geochemical techniques, and

field study.

Introduction to Mineralogy and Petrology

Earth Materials

Minerals and rocks form the foundation of geologic studies. This new textbook has been written to address the needs of students at the increasing number of universities that have compressed separate mineralogy and petrology courses into a one- or two-semester Earth materials course. Key features of this book include: equal coverage of mineralogy, sedimentary petrology, igneous petrology and metamorphic petrology; copious field examples and regional relationships with graphics that illustrate the concepts discussed; numerous case studies to show the uses of earth materials as resources and their fundamental role in our lives and the global economy, and their relation to natural and human-induced hazards; the integration of earth materials into a cohesive process-based earth systems framework; two color thoughout with 48 pages of four color. Readership: students taking an earth materials, or combined mineralogy and petrology course in an earth science degree program. It will also be useful for environmental scientists, engineering geologists, and physical geographers who need to learn about minerals, rocks, soil and water in a comprehensive framework. A companion website for this book is available at: www.wiley.com/go/hefferan/earthmaterials.

Introduction to Sedimentology, 2e (PB)

A guide to the recognition and description of sedimentary rocks in the field. It aims to help the geologist know what to observe and record and how best to interpret this data and is of value to students, amateur enthusiasts and professional geologists.

Sedimentary Rocks in the Field

This textbook provides a basic understanding of the formative processes of igneous and metamorphic rock through quantitative applications of simple physical and chemical principles. The book encourages a deeper comprehension of the subject by explaining the petrologic principles rather than simply presenting the student with petrologic facts and terminology. Assuming knowledge of only introductory college-level courses in physics, chemistry, and calculus, it lucidly outlines mathematical derivations fully and at an elementary level, and is ideal for intermediate and advanced courses in igneous and metamorphic petrology. The end-of-chapter quantitative problem sets facilitate student learning by working through simple applications. They also introduce several widely-used thermodynamic software programs for calculating igneous and metamorphic phase equilibria and image analysis software. With over 350 illustrations, this revised edition contains valuable new material on the structure of the Earth's mantle and core, the properties and behaviour of magmas, recent results from satellite imaging, and more.

Introduction to Mineralogy and Petrology

A concise introduction to the mineralogy and petrology of igneous and metamorphic rocks for all Earth Science students.

Sedimentary Geology

Carbonate rocks (limestones and dolomites) constitute a major partof the geological column and contain not only 60% of the world'sknown hydrocarbons but also host extensive mineral deposits. Thisbook represents the first major review of carbonate sedimentologysince the mid 1970's. It is aimed at the advanced undergraduate -postgraduate level and will also be of major interest to geologistsworking in the oil industry. Carbonate Sedimentology is designed to take the readerfrom the basic aspects of limestone recognition and classificationthrough to an appreciation of the most recent developments such aslarge scale facies modelling and isotope geochemistry. Novelaspects of the book include a detailed review of carbonatemineralogy, non-marine carbonate depositional environments and anin-depth look at carbonate deposition and diagenesis throughgeologic time. In addition, the reviews of individual depositionalsystems stress a process-based approach rather than one centered onsimple comparative sedimentology. The unique quality of this bookis that it contains integrated reviews of carbonate sedimentologyand diagenesis, within one volume.

Earth Materials

This fully revised and updated edition introduces the reader to sedimentology and stratigraphic principles, and provides tools for the interpretation of sediments and sedimentary rocks. The processes of formation, transport and deposition of sediment are considered and then applied to develop conceptual models for the full range of sedimentary environments, from deserts to deep seas and reefs to rivers. Different approaches to using stratigraphic principles to date and correlate strata are also considered, in order to provide a comprehensive introduction to all aspects of sedimentology and stratigraphy. The text and figures are designed to be accessible to anyone completely new to the subject, and all of the illustrative material is provided in an accompanying CD-ROM. High-resolution versions of these images can also be downloaded from the companion website for this book at: www.wiley.com/go/nicholssedimentology.

An Introduction to Sedimentary Petrology with Special Reference to Loose Detrital Deposits and Their Correlation by Petrographic Methods

"Ideas and concepts in sedimentology are changing rapidly, but field work and data collection remain the basis of the science. This book is intended as a guide to the recognition and description of sedimentary rocks in the field. It aims to help students and professional geologists know what to observe and record, and how best to interpret this data. The emphasis is on illustrating the principal types of sedimentary rocks, which is accomplished through more than 450 color photos and

explanatory drawings. The introductory chapter defines the main types of sedimentary rocks, their classification, and their economic significance. The author then goes on to describe standard field techniques and provides a comprehensive summary of the principal characteristics of sedimentary rocks. Additional chapters cover each of the main rock types and describe how to interpret rocks and their features in terms of depositional environments." "This book is an ideal field companion for undergraduate and graduate students of geology, environmental sciences, hydrogeology, oceanography, and more. Professionals in petroleum geology and resource management, as well as budding geologists, will also find this to be an indispensable reference."--BOOK JACKET.

Principles of Sedimentology and Stratigraphy

The earlier editions of this book have been used by successive generations of students for more than 20 years, and it is the standard text on the subject in most British universities and many others throughout the world. The study of sediments and sedimentary rocks continues to be a core topic in the Earth Sciences and this book aims to provide a concise account of their composition, mineralogy, textures, structures, diagenesis and depositional environments. This latest edition is noteworthy for the inclusion of 16 plates with 54 colour photomicrographs of sedimentary rocks in thin-section. These bring sediments to life and show their beauty and colorful appearance down the microscope; they will aid the student enormously in laboratory petrographic work. The text has been revised where necessary and the reference and further reading lists brought up-to-date. New tables have been included to help undergraduates with rock and thin-section description and interpretation. New 16-page colour section will mean students do not need to buy Longman Atlas All illustrations redrawn to higher standard Complete revision of text - new material on sedimentary geochemistry, etc

The Principles of PETROLOGY

Written for a first course in sedimentary geology or sedimentary rocks and stratigraphy (with only an introductory geology/physical geology course as a prerequisite), Prothero and Schwab shows students how sedimentary strata serves geologists as a continuous record of Earth's history. The authors' conversational style, and focus on the important concepts make the book highly accessible to an undergraduate audience.

Backscattered Scanning Electron Microscopy and Image Analysis of Sediments and Sedimentary Rocks

The understanding of Earth processes and environments over geological time is highly dependent upon both the experience that can only be gained through doing fieldwork, and the collection of reliable data and appropriate samples in the field. This textbook explains the main data gathering techniques used by geologists in the field and the reasons for these, with emphasis throughout on how to make effective field observations and record these in suitable formats. Equal weight is given to assembling field observations from igneous, metamorphic and sedimentary rock types. There are also substantial chapters on producing a field

notebook, collecting structural information, recording fossil data and constructing geological maps. The volume is in a robust and handy size, with colour coded chapters for ease of use and quick reference in the field. Geological Field Techniques is designed for students, amateur enthusiasts and professionals who have a background in geology and wish to collect field data on rocks and geological features. Teaching aspects of this textbook include: step-by-step guides to essential practical skills such as using a compass-clinometer, making a geological map and drawing a field sketch; tricks of the trade, checklists, flow charts and short worked examples; over 200 illustrations of a wide range of field notes, maps and geological features; appendices with the commonly used rock description and classification diagrams; a supporting website hosted by Wiley Blackwell.

Geochemistry of Sedimentary Carbonates

Introduction to Sedimentology

This undergraduate textbook on the key subject of geology closely follows the core curriculum adopted by most universities throughout the world and is a must for every geology student. It covers all aspects of petrology, including not only the principles of petrology but also applications to the origin, composition, and field relationships of rocks. Although petrology is commonly taught in the junior year, this book is a useful resource for graduate students as well.

Procedures in Sedimentary Petrology

This book covers the more basic aspects of carbonate minerals and their interaction with aqueous solutions; modern marine carbonate formation and sediments; carbonate diagenesis (early marine, meteoric and burial); the global cycle of carbon and human intervention; and the role of sedimentary carbonates as indicators of stability and changes in the Earth's surface environment. The selected subjects are presented with sufficient background information to enable the non-specialist to understand the basic chemistry involved. Tested on classes taught by the authors, and approved by the students, this comprehensive volume will prove itself to be a valuable reference source to students, researchers and professionals in the fields of oceanography, geochemistry, petrology, environmental science and petroleum geology.