

## BOOK REVIEW

**Clay Mineralogy: An Introductory Course.** Ray E. Ferrell, Jr. E-series #1, The Clay Minerals Society, Chantilly, VA, USA. Single CD. Price \$10.00.

Every now and then, something comes along that is both a great value and extremely useful. *Clay Mineralogy: An Introductory Course* falls into that category. The CD contains material assembled by Prof. Ray Ferrell for use in his graduate-level clay mineralogy course at Louisiana State University, Baton Rouge, Louisiana. It represents 12 years of experience in the use of electronic media by Prof. Ferrell to provide course content for his undergraduate and graduate courses. The CD provides a wealth of material that should be of interest to students, teachers and professionals.

The 'core' of the material is structured around six modules that cover: (1) introduction to clay mineralogy; (2) basic mineralogy and classification; (3) geological origin; (4) aqueous solubility and ion exchange; (5) waste isolation and fluid flow; and (6) X-ray powder diffraction. This material is covered in ~185 pages of text that is liberally illustrated with color photographs and diagrams, and even with a few short movies. The material is written in an easy to read, explanatory style and is interspersed with questions for students to ponder as they study the subject matter. The text, however, is not designed to stand on its own. The reader is referred to some 54 published papers that expand on concepts introduced in the six modules. In Prof. Ferrell's words, 'The pedagogical approach challenges the reader to recognize the general principles of clay mineralogy presented in the selected readings rather than simply reading a literature summary in a textbook-style chapter.' All 54 publications are available on the CD for immediate access in PDF format. A listing of all AIPEA nomenclature reports (courtesy of Steve Guggenheim) is included in module 2, but the reports themselves are not.

There are 12 narrated slide shows that explain and reinforce key concepts. Most of these describe how to prepare clay samples for X-ray diffraction and how to analyze the resulting diffraction data. The CD also contains the following software for installation on one's own computer: FULLPAT by S. Chipera and D. Bish; Rockjock, MudMaster, and Galoper by D. Eberl *et al.*; Clay++ and Mulcalc by R. Ferrell; MacDiff by

R. Petschick; and CALCMX, EXPERT SYSTEM, and MODSRX by A. Plançon and V. Drits. In addition, there is a copy of the U.S. Geological Survey Laboratory Manual for X-ray Powder Diffraction.

The bulk of the material covered on the CD is focused on phyllosilicate clay minerals and on clays in a geological and environmental context. Students of soil mineralogy will not find much information on other fine-grained mineral groups like carbonates, evaporites, zeolites, Fe oxides, and Mn oxides that are common in some soils. Likewise, students in materials science or chemistry will not find much information on clays as industrial materials. This is not a criticism of Prof. Ferrell's approach, but a reflection of the fact that the study of clay mineralogy is approached from many different perspectives. Students of all facets of clay science should find something of interest and use to them on the CD, and they may find themselves becoming interested in an aspect of clay mineralogy that is new to them.

The distribution of the material as Adobe Acrobat PDF documents has the advantage that the pages are always properly formatted when printed. One does not have to put up with the frustration of a page break occurring in the middle of a figure or line of text as occurs with html documents. Except for a few external hyperlinks, all of the material is available on the CD itself. Thus, broken links will not become an issue over time, and the material is accessible even without a connection to the internet. The 14 pt font size makes the text easy to read on a computer screen. Navigation of the PDF files is not as convenient as it is in a web browser, but works fine once you figure out that you must jump to the very end of each document to find the navigation buttons.

Prof. Ferrell should be applauded for making his teaching material available to all of us. This CD is a great addition to The Clay Minerals Society publications portfolio.

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