



FOURTH EDITION

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STRUCTURAL ANALYSIS & SYNTHESIS

A LABORATORY COURSE IN
STRUCTURAL GEOLOGY



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A Laboratory Course in Structural Geology

Fourth Edition

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Preface

This manual is intended to serve as the primary resource for the laboratory portion of an introductory course in structural geology for undergraduate students. It is designed to accompany any of the available structural geology textbooks. It supports both the descriptive and quantitative parts of a course at approximately the same level of detail as most of the textbooks. The book retains 17 chapters to cover the standard 12-14 weeks of a semester, and several chapters have specialized themes. The organization by the authors places most of the areas deemed necessary to structural geology at the front of the manual, followed by a synthesis of most of them, and then the more specialized topics at the end.

One of the most challenging aspects of structural geology for introductory students is visualizing three-dimensional structural features and objects and representing them or projecting them on two-dimensional diagrams for analysis. This is still the case even with computer programs to solve simple to complex problems. Students are strongly encouraged to use props to help visualize the real-world features rather than trying to imagine them. The exercises are much easier to solve and the methods understood using this approach.

The other challenge for students is that many techniques build upon previously learned techniques. It is imperative for students to complete the supporting exercises and fully understand them before moving to the next level of rigor, or the deficits will snowball. This is especially true with the equal-area projections which are used in multiple chapters. For this reason, all of the exercises should be done