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Nota di contenuto	LONGITUDINAL DATA ANALYSIS; CONTENTS; Preface; Acknowledgments; Acronyms; 1 Introduction; 1.1 Advantages of Longitudinal Studies; 1.2 Challenges of Longitudinal Data Analysis; 1.3 Some General Notation; 1.4 Data Layout; 1.5 Analysis Considerations; 1.6 General Approaches; 1.7 The Simplest Longitudinal Analysis; 1.7.1 Change Score Analysis; 1.7.2 Analysis of Covariance of Post-test Scores; 1.7.3 ANCOVA of Change Scores; 1.7.4 Example; 1.8 Summary; 2 ANOVA Approaches to Longitudinal Data; 2.1 Single-Sample Repeated Measures ANOVA; 2.1.1 Design; 2.1.2 Decomposing the Time Effect 2.1.2.1 Trend Analysis-Orthogonal Polynomial Contrasts2.1.2.2 Change Relative to Baseline-Reference Cell Contrasts; 2.1.2.3 Consecutive Time Comparisons-Profile Contrasts; 2.1.2.4 Contrasting Each Timepoint to the Mean of Subsequent Timepoints-Helmert Contrasts; 2.1.2.5 Contrasting Each Timepoint to the Mean of Others-Deviation Contrasts; 2.1.2.6 Multiple Comparisons; 2.2 Multiple-

Sample Repeated Measures ANOVA; 2.2.1 Testing for Group by Time Interaction; 2.2.2 Testing for Subject Effect; 2.2.3 Contrasts for Time Effects; 2.2.3.1 Orthogonal Polynomial Partition of SS 2.2.4 Compound Symmetry and Sphericity 2.2.4.1 Sphericity; 2.3 Illustration; 2.4 Summary; 3 MANOVA Approaches to Longitudinal Data; 3.1 Data Layout for ANOVA versus MANOVA; 3.2 MANOVA for Repeated Measurements; 3.2.1 Growth Curve Analysis-Polynomial Representation; 3.2.2 Extracting Univariate Repeated Measures ANOVA Results; 3.2.3 Multivariate Test of the Time Effect; 3.2.4 Tests of Specific Time Elements; 3.3 MANOVA of Repeated Measures-s Sample Case; 3.3.1 Extracting Univariate Repeated Measures ANOVA Results; 3.3.2 Multivariate Tests; 3.4 Illustration; 3.5 Summary 4 Mixed-Effects Regression Models for Continuous Outcomes 4.1 Introduction; 4.2 A Simple Linear Regression Model; 4.3 Random Intercept MRM; 4.3.1 Incomplete Data Across Time; 4.3.2 Compound Symmetry and Intraclass Correlation; 4.3.3 Inference; 4.3.4 Psychiatric Dataset; 4.3.5 Random Intercept Model Example; 4.4 Random Intercept and Trend MRM; 4.4.1 Random Intercept and Trend Example; 4.4.2 Coding of Time; 4.4.2.1 Example; 4.4.3 Effect of Diagnosis on Time Trends; 4.5 Matrix Formulation; 4.5.1 Fit of Variance-Covariance Matrix; 4.5.2 Model with Time-Varying Covariates 4.5.2.1 Within and Between-Subjects Effects for Time-Varying Covariates 4.5.2.2 Time Interactions with Time-Varying Covariates; 4.6 Estimation; 4.6.1 ML Bias in Estimation of Variance Parameters; 4.7 Summary; 5 Mixed-Effects Polynomial Regression Models; 5.1 Introduction; 5.2 Curvilinear Trend Model; 5.2.1 Curvilinear Trend Example; 5.3 Orthogonal Polynomials; 5.3.1 Model Representations; 5.3.2 Orthogonal Polynomial Trend Example; 5.3.3 Translating Parameters; 5.3.4 Higher-Order Polynomial Models; 5.3.5 Cubic Trend Example; 5.4 Summary; 6 Covariance Pattern Models; 6.1 Introduction 6.2 Covariance Pattern Models

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#### Sommario/riassunto

Longitudinal data analysis for biomedical and behavioral sciences This innovative book sets forth and describes methods for the analysis of longitudinal data, emphasizing applications to problems in the biomedical and behavioral sciences. Reflecting the growing importance and use of longitudinal data across many areas of research, the text is designed to help users of statistics better analyze and understand this type of data. Much of the material from the book grew out of a course taught by Dr. Hedeker on longitudinal data analysis. The material is, therefore, thoroughly classroom tested.

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