

ANALYTICAL PALEOBIOLOGY



SHORT COURSES IN PALEONTOLOGY

NUMBER 4

1991

convened by Norman L. Gilinsky and Phillip W. Signor
edited by Norman L. Gilinsky and Phillip W. Signor

Stephen J. Culver, Series Editor

A Publication of the Paleontological Society

ANALYTICAL PALEOBIOLOGY



SHORT COURSES IN PALEONTOLOGY

NUMBER 4

1991

convened by Norman L. Gilinsky and Phillip W. Signor
edited by Norman L. Gilinsky and Phillip W. Signor

Stephen J. Culver, Series Editor

A Publication of the Paleontological Society

CONTENTS

PROGRAM	ii
PREFACE	iii
AUTHORS	iv
Introduction to Analytical Paleobiology by Philip W. Signor and Norman L. Gilinsky	1
Sampling from the Fossil Record by Carl F. Koch	4
Estimation of Taxonomic Ranges from the Fossil Record by Charles R. Marshall	19
Quantitative Biostratigraphy by Lucy E. Edwards	39
Analysis of Morphological Data by Mike Foote	59
Theoretical Morphology: the Concept and its Applications by George R. McGhee, Jr.	87
Phylogenetic Analysis and its Application in Evolutionary Paleobiology by Daniel C. Fisher	103
Random Models in Paleobiology by Philip W. Signor	123
Population Biology Models in Macroevolution by J. John Sepkoski, Jr.	136
The Pace of Taxonomic Evolution by Norman L. Gilinsky	157
Taxonomic Survivorship Curves by Rebecca Z. German	175
Bootstrapping and the Fossil Record by Norman L. Gilinsky	185
The Future of Analytical Paleobiology by David M. Raup	207