

Contents

Foreword	vii
Preface	
M. B. COZZENS and F. S. ROBERTS	ix
 The Rationale for High School BioMath	
Why BioMath? Why Now?	
F. S. ROBERTS	3
The Interdisciplinary Scientist of the 21st Century	
E. JAKOBSSON	35
Teaching Bioinformatics and Genomics: An Interdisciplinary Approach	
L. J. HEYER and A. M. CAMPBELL	49
Mathematical Macrobiology: An Unexploited Opportunity in High School Education	
N. H. FEFFERMAN and L. M. FEFFERMAN	61
Counting RNA Patterns in the Classroom: A Link Between Molecular Biology and Enumerative Combinatorics	
A. NKWANTA, D. HILL, A. SWAMY, and K. PETERS	79
 Curriculum Materials and Teacher Training/Development	
New Materials to Integrate Biology and Mathematics in High School Curriculum	
M. B. COZZENS	97
The Awakening of a High School Biology Teacher to the BioMath Connection	
K. M. GABRIC	109
A Beginning Experience: Linking High School Biology and Mathematics	
L. J. MORRIS, C. LONG, and J. KISSLER	113
Integrating Interdisciplinary Science into High School Science Modules Through a Preproinsulin Example	
K. G. HERBERT and J. H. DYER	119
Insights from Math-Science Collaboration at the High School Level	
M. C. ROGERS and D. S. YUSTER	147

Topics, Course Changes, and Technology

Complexity and Biology—Bringing Quantitative Science to the Life Sciences Classroom	
H. SCHEINTAUB, E. KLOPFER, M. SCHEINTAUB, and E. ROSENBAUM	157
Distance and Trees in High School Biology and Mathematics Classrooms	
J. MALKEVITCH	169
Mathematical Biology: Tools for Inquiry on the Internet	
M. E. MARTIN	183
The Calculus Cycle: Using Biology to Connect Discrete and Continuous Modeling in Calculus	
E. S. MARLAND and M. E. SEARCY	197
Research at ASMSA Based on the DIMACS BioMath Program	
C. MULLINS and D. W. CRANSTON	221

Evaluation of How the Integration of Biology and Mathematics Works

Integrating Biology and Mathematics in High School Classrooms	
A. E. WEINBERG and AND L. ALBRIGHT	229