

# Contents

Introduction	1
Chapter 0. Gaussian Binomial Coefficients	5
Chapter 1. The Quantized Enveloping Algebra $U_q(\mathfrak{sl}_2)$	9
Chapter 2. Representations of $U_q(\mathfrak{sl}_2)$	17
Chapter 3. Tensor Products or: $U_q(\mathfrak{sl}_2)$ as a Hopf Algebra	31
Chapter 4. The Quantized Enveloping Algebra $U_q(\mathfrak{g})$	51
Chapter 5. Representations of $U_q(\mathfrak{g})$	69
Chapter 5A. Examples of Representations	87
Chapter 6. The Center and Bilinear Forms	105
Chapter 7. $R$ -matrices and $k_q[G]$	129
Chapter 8. Braid Group Actions and PBW Type Basis	141
Chapter 8A. Proof of Proposition 8.28	173
Chapter 9. Crystal Bases I	187
Chapter 10. Crystal Bases II	217
Chapter 11. Crystal Bases III	237
References	259
Notations	263
Index	265