

# Contents

Preface	vii
<b>I Baseball</b>	<b>1</b>
1 <b>Sabermetrics: The Past, the Present, and the Future</b> <i>Jim Albert</i>	3
2 <b>Surprising Streaks and Playoff Parity: Probability Problems in a Sports Context</b> <i>Rick Cleary</i>	15
3 <b>Did Humidifying the Baseball Decrease the Number of Homers at Coors Field?</b> <i>Howard Penn</i>	23
4 <b>Streaking: Finding the Probability for a Batting Streak</b> <i>Stanley Rothman and Quoc Le</i>	31
<b>II Basketball</b>	<b>53</b>
5 <b>Bracketology: How can math help?</b> <i>Tim Chartier &amp; Erich Kreutzer &amp; Amy Langville &amp; Kathryn Pedings</i>	55
6 <b>Down 4 with a Minute to Go</b> <i>G. Edgar Parker</i>	71
7 <b>Jump Shot Mathematics</b> <i>Howard Penn</i>	85

<b>III</b>	<b>Football</b>	<b>91</b>
8	<b>How Deep Is Your Playbook?</b> <i>Tricia Muldoon Brown and Eric B. Kahn</i>	<b>93</b>
9	<b>A Look at Overtime in the NFL</b> <i>Chris Jones</i>	<b>109</b>
10	<b>Extending the Colley Method to Generate Predictive Football Rankings</b> <i>R. Drew Pasteur</i>	<b>117</b>
11	<b>When Perfect Isn't Good Enough: Retrodictive Rankings in College Football</b> <i>R. Drew Pasteur</i>	<b>131</b>
<b>IV</b>	<b>Golf</b>	<b>147</b>
12	<b>The Science of a Drive</b> <i>Douglas N. Arnold</i>	<b>149</b>
13	<b>Is Tiger Woods a Winner?</b> <i>Scott M. Berry</i>	<b>157</b>
14	<b>G. H. Hardy's Golfing Adventure</b> <i>Roland Minton</i>	<b>169</b>
15	<b>Tigermetrics</b> <i>Roland Minton</i>	<b>179</b>
<b>V</b>	<b>NASCAR</b>	<b>187</b>
16	<b>Can Mathematics Make a Difference? Exploring Tire Troubles in NASCAR</b> <i>Cheryll E. Crowe</i>	<b>189</b>
<b>VI</b>	<b>Scheduling</b>	<b>201</b>
17	<b>Scheduling a Tournament</b> <i>Dalibor Froncek</i>	<b>203</b>

Contents	xi
<b>VII Soccer</b>	<b>217</b>
<b>18 Bending a Soccer Ball with Math</b> <i>Tim Chartier</i>	<b>219</b>
<b>VIII Tennis</b>	<b>225</b>
<b>19 Teaching Mathematics and Statistics Using Tennis</b> <i>Reza Noubary</i>	<b>227</b>
<b>20 Percentage Play in Tennis</b> <i>G. Edgar Parker</i>	<b>241</b>
<b>IX Track and Field</b>	<b>257</b>
<b>21 The Effects of Wind and Altitude in the 400m Sprint with Various IAAF Track Geometries</b> <i>Vanessa Alday and Michael Frantz</i>	<b>259</b>
<b>22 Mathematical Ranking of the Division III Track and Field Conferences</b> <i>Chris Fisette</i>	<b>279</b>
<b>23 What is the Speed Limit for Men's 100 Meter Dash</b> <i>Reza Noubary</i>	<b>287</b>
<b>24 May the Best Team Win: Determining the Winner of a Cross Country Race</b> <i>Stephen Szydlik</i>	<b>295</b>
<b>25 Biomechanics of Running and Walking</b> <i>Anthony Tongen and Roshna E. Wunderlich</i>	<b>315</b>
<b>About the Editor</b>	<b>329</b>