

# **CONTENTS**

<b>Foreword.....</b>	<b>VII</b>
----------------------	------------

Vasilis P. Valdramidis, Enda Cummins and Jan F.M. Van Impe

## **PART 1 Modelling in Bioscience and Food**

### **Chapters**

<b>1. INTRODUCTION TO PREDICTIVE MICROBIOLOGY .....</b>	<b>5</b>
---	----------

Vasilis Valdramidis, Maria Baka, Cindy Smet, Philippe Nimmemeers, Simen Akkermans and Jan Van Impe

<b>2. MULTISCALE MODELLING IN PREDICTIVE MICROBIOLOGY: MACROSCOPIC APPROACH.....</b>	<b>15</b>
--	-----------

Cindy Smet, Simen Akkermans, Maria Baka, Vasilis Valdramidis and Jan Van Impe

<b>EXERCISES OF CHAPTER 2 (EXERCISE NOTATIONS: E2.1, E2.2, E2.3, ETC) .....</b>	<b>47</b>
---	-----------

<b>3. MULTISCALE MODELLING IN PREDICTIVE MICROBIOLOGY: MESOSCOPIC AND MICROSCOPIC APPROACH .....</b>	<b>53</b>
--	-----------

Maria Baka, Philippe Nimmemeers, Cindy Smet and Jan Van Impe

<b>EXERCISES OF CHAPTER 3 (EXERCISE NOTATIONS: E3.1, E3.2, E3.3, ETC) .....</b>	<b>75</b>
---	-----------

<b>4. MODEL CALIBRATION BASED ON INFORMATIVE EXPERIMENTS: DOE AND OED ....</b>	<b>89</b>
--	-----------

Simen Akkermans, Dries Telen, Philippe Nimmemeers, Vasilis P. Valdramidis and Jan F. Van Impe

<b>EXERCISES OF CHAPTER 4 (EXERCISE NOTATIONS: E4.1, E4.2, E4.3, ETC) .....</b>	<b>120</b>
---	------------

### **Solutions**

<b>E2.1-E2.5 .....</b>	<b>127</b>
------------------------	------------

<b>E3.1-E3.3 .....</b>	<b>131</b>
------------------------	------------

<b>E4.1-E4.5 .....</b>	<b>139</b>
------------------------	------------

# **CONTENTS**

## **PART 2 Risk Assessment**

### **Chapters**

<b>5.</b>	<b>FUNDAMENTAL PRINCIPLES OF RISK ASSESSMENT .....</b>	<b>151</b>
-----------	--	------------

Enda Cummins

<b>EXERCISES OF CHAPTER 5 (EXERCISE NOTATIONS: E5.1, E5.2, E5.3, ETC) .....</b>	<b>173</b>
---	------------

<b>6.</b>	<b>QUANTITATIVE MICROBIAL RISK ASSESSMENT DURING FOOD PROCESSING .....</b>	<b>183</b>
-----------	--	------------

Jeanne-Marie Membré and Géraldine Boué

<b>EXERCISES OF CHAPTER 6 (EXERCISE NOTATIONS: E6.1, E6.2, E6.3, ETC) .....</b>	<b>197</b>
---	------------

<b>7.</b>	<b>PREDICTING MICROBIAL BEHAVIOUR DURING DISTRIBUTION AND STORAGE OF FOODS IN EXPOSURE ASSESSMENT .....</b>	<b>205</b>
-----------	---	------------

Maria Gougouli and Konstantinos P. Koutsoumanis

<b>EXERCISES OF CHAPTER 7 (EXERCISE NOTATIONS: E7.1, E7.2, E7.3, ETC) .....</b>	<b>229</b>
---	------------

### **Solutions**

<b>E5.1-E5.3 .....</b>	<b>233</b>
------------------------	------------

<b>E6.1-E6.8 .....</b>	<b>234</b>
------------------------	------------

<b>E7.1-E7.5 .....</b>	<b>245</b>
------------------------	------------

## **PART 3 Life Cycle Analysis**

### **Chapters**

<b>8.</b>	<b>FOOD PROCESSING AND ENERGY DEMAND ASSESSMENT .....</b>	<b>261</b>
-----------	---	------------

Alberto Almena, Serafim Bakalis, Estefania Lopez-Quiroga

<b>EXERCISES OF CHAPTER 8 (EXERCISE NOTATIONS: E8.1, E8.2, E8.3, ETC) .....</b>	<b>276</b>
---	------------

<b>9.</b>	<b>LIFE CYCLE ASSESSMENT .....</b>	<b>281</b>
-----------	------------------------------------	------------

Laura Roibás and Almudena Hospido

<b>EXERCISES OF CHAPTER 9 (EXERCISE NOTATIONS: E9.1, E9.2, E9.3, ETC) .....</b>	<b>307</b>
---	------------

## **CONTENTS**

### **Solutions**

E8.1-E8.4 .....	321
E9.1-E9.5 .....	328