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"The seventh edition is the most radical revision of this textbook to date and now includes color figures, a visual transformation over the sixth edition. However, we were careful to retain the same format as the sixth edition, which divided the book into two parts. Part I contains 17 chapters and represents both a general introduction to radiation biology and a complete self-contained course in the subject, suitable for residents in diagnostic radiology and nuclear medicine. It follows the format of the Syllabus in Radiation Biology prepared by the Radiological Society of North America (RSNA), and its content reflects the questions appearing in recent years in the written examination for diagnostic radiology residents given by the American Board of Radiology. Part II consists of 11 chapters of more in-depth material designed primarily for residents in radiation oncology. We live in an exciting time, but yet a dangerous time as well. The threat of nuclear terror rears its head way too often. If such an event occurs, those trained in the radiation sciences will be called on to manage exposed individuals. For this reason, we have included a new chapter on Radiologic Terrorism (Chapter 14). The translation of molecular imaging into the clinic is moving at a rapid pace. Therefore, we also included a chapter on fundamental concepts in molecular imaging that involves ionizing radiation such as CAT scans and PET imaging to reflect these new advances and describe the underlying biologic principles for each of these technologies (Chapter 15). The subject of retreatment with radiotherapy is not covered in most textbooks, and, because of this void, we have dedicated a new chapter to this subject (Chapter 24)"--Provided by publisher.