Lecture		Ch/Pg
1. Course Orientation & Introduction		
2. Homeostasis, Adaptation, & Cell Death	• Principles • Adaptive Responses (Hypertrophy, Hyperplasia, Atrophy, Metaplasia) • Cell Injury (reversible/irriversible) • Cell Death • Morphology of Cell Death	Ch1 Pg. 1-5 Pg. 8-11
3. Cell Injury & Death	• Causes • Principles & mechanisms (Mitochondria, Ca^{2+}, Free radicals & ROS, Membrane damage) • Mechanisms in practice (Hypoxia Ischemia, Reperfusion, Chemical)	Pg. 6-7 Pg. 11-18
4. Apoptosis	• Definition • Principles • Causes • Mechanisms (Mitochondrial, Death receptor) • Mechanisms in practice (Growth factor deprivation, DNA damage, Protein damage, role in immunity) • Necroptosis	Pg. 18-22
5.	• Autophagy • Intracellular accumulations • Pathologic calcification • Cellular aging	Pg. 22-28

Lecture		Ch/Pg
12. Cell proliferation in tissue repair	• Overview of tissue repair • Cell proliferation • Stem cells • Growth factors	Ch2 Pg. 58-62

13. Role of the ECM in tissue repair	• Extracellular matrix
	  • Structure
	  • Components
	  • Function
	• Regeneration in tissue repair
	• Overview of tissue response to injury - revisited
		Pg. 63-65

14. Scarring & Fibrosis	• Steps
	  • Angiogenesis
	  • Activation of fibroblasts & ECM deposition
	  • Maturation & remodelling
	• Factors influencing tissue repair
	• Clinical examples
		Pg. 66-72

16. Neoplasia	• Definition & Nomenclature
	• Benign & Malignant neoplasia
	• Characteristics
	  • Differentiation & Anaplasia
	  • Rate of growth
	  • Local invasion
	  • Metastasis
		Ch5
		Pg. 161-169

Lecture		Ch/Pg

17. Epidemiology & introduction to the molecular biology of cancer	• Epidemiology
	  • Environment
	  • Age
	  • Heredity
	  • Acquired pre-neoplastic lesions
		Pg. 169-173

18. Genetics & epigenetics of cancer	• Molecular Biology of Cancer (introduction)
	• Karyotypic changes
	  • Translocation
	  • Deletion
	  • Amplification
	  • Aneuploidy
	• miRNA
	• Epigenetic changes (methylation)
	• Molecular Biology of Cancer (initiation & progression)
	• Hallmarks of Cancer (introduction)
		Pg. 173-178

19. Hallmarks of Cancer - Growth & Growth inhibition	• Growth factors & their receptors • Signal transduction & transcription • Cell cycle control (cyclins & CDKs) • The first tumor suppressor gene: RB	Pg. 178-184
20. Hallmarks of Cancer - Growth inhibition & Evasion of death	• Guardian of the genome: p53 • TGFβ signalling • Contact inhibition: NF2 & APC • Evasion of cell death	Pg. 185-190

Lecture		Ch/Pg
21. Hallmarks continued	• Limitless replicative potential • Development of sustained angiogenesis • Ability to invade and metastasize	Pg. 190-195
22. New Hallmarks	• Reprogramming Energy Metabolism • Evasion of the Immune System • Genomic instability • Inflammation	Pg. 195-198

23. Etiology of cancer	• Chemical
	• Radiological
	• Microbial
	  • Oncogenic viruses
	  • *H. Pylori*
		Pg. 198-204

24. Tumor immunity	• Tumor antigens • Cell mediated immunity • Immune surveillance & evasion	Pg. 204-207
25. Clinical aspects of neoplasia	• Systemic effects • Grading & staging • Lab diagnosis including molecular methods	Pg. 207-213