朝陽科技大學 094學年度第1學期教學大綱
Molecular and Cell Biology 分子與細胞生物學

當期課號	7226	Course Number	7226
授課教師	李孟真	Instructor	LEE,MENG JEN
中文課名	分子與細胞生物學	Course Name	Molecular and Cell Biology
開課單位	生物技術研究所碩士班一A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	1) 分子遺傳之基礎科學。 2) 分子遺傳學之基本原理與技術。 3) 基因選殖技術 等相關技術之了解及實作。	Objectives	This course will be aimed at : 1) introduction to molecular genetics, 2) principle and techniques in molecular genetics, 3) gene cloning and related techniques.
教材		Teaching Materials	
成績評量方式	小考+期中考+期末考	Grading	
教師網頁			
教學內容	大綱 Molecular tools for studying genes and gene activities Molecular methods DNA replication Transcription in prokaryotes Transcription in Eukaryotics Proteomics Protein synthesis and sorting genomics genomics 植物功能性基因體學 virology 總復習+考試 基礎細胞學: 細胞間質分子, junctions細胞骨架 訊息傳遞-1 訊息傳遞-2 細胞分裂 癌症之分子生物學 總復習+考試	Syllabus	1. 基礎生化: Nucleic acids and Proteins 2. 遺傳及微生物學:mitosis and meiosis 3. central dogma 4. Geneic code 5. gene function 6. Components of gene expression 1. gel electrophoresis, 2-D electrophoresis 2. ion-exchange chromatography,gel iltration chromatography 3. autoradiography, phosphoimaging 4. liquid sccitilation counting 5. southern, northern, Western 6. sequencing 7. RE mapping 8. Eliza 9. yeast 2 hybrid, immunoprecipitation…..(see Weaver) 1. 基因選殖之設計 2. 基因定位與據圖選殖 3. material used: enzyme, vector 1. The organization and packaging of chromosomal DNA 2. Chromosomal DNA replication 3. DNA repair and recombination 4. homologous recombination 5. application of Recombinant DNA 1. 小考 2. Operon 3. DNA-protein interaction 1. Promoters 2. general transcription factors 3. transcription factors 4. transcription regulation and post-transcriptional regulation 5. RNA synthesis and processing 1. protein synthesis and sorting 2. proteomics Structure of eukaryotic genomes 1. classification 2. structure and biology 3. genome organization and expression。> 1. Golgi complex

			2. Protein glycoslation 3. Protein sorting 4. Exocytois and endocytosis 5. Coated vesicles in transport 6. Lysosome and digestion 7. Peroxisome 8. Protein sorting 1. laminin, fibronectin, collagen, elastin, proteoglycan, hyaranic acid 2. cytoskeleton 3. integrin 4. MMP 5. tight junction, gap junction, desmosome mode of action (cell communication slides) receptors types: membrane, nuclear growth factors G proteins: viagra Ras/raf MEK Transcription factors Nuclear translocation Paracrine, autocrine 1. phases, cytoskeleton, telomere 2. mitosis and meosis 3. G1 S G2 M 4. Checkpoint 5. Cdk, cyclin, EF 6. Rb, P53 7. Meiosis 1. oncogene (element of the signal transduction): growth factors, receptor mutation, plasma membrane G protein, transcription factor, cyclin, 2. tumor suppressor defect: P53, Rb, 3. multiple hit, care-taker and gate keeper 4. telomere