

Clinical Biochemistry (4 CFU; 40 hours: 32 frontal , 8 practical)			
Objectives of the course: the student will know the biochemical bases to determine the analytes useful for the care, diagnosis, prognosis and therapy			
Lectures			
General subjects and acquired skills	subjects	Specific subjects	hours
1. BIOCHEMISTRY OF INFORMATION (TOT.12 HOURS) [knowledge of DNA structure nad function]	<i>From DNA to proteins</i>	From DNA structure to gene expression and protein synthesis	1
	<i>Nucleosomes structure , DNA polimerase</i>	Nucleosomes, epigenetic modifications, messengers plasticity.	1
		From Miescher to Crick and Mullis: 150 years of DNA .	1
	<i>DNA: duplication</i>	DNA polimerase, duplication , Okazaki fragments.	1
		Chromatographic and spectroscopic techniques	2
	<i>Translation</i>	RNA polimerase, TATA box, silencers and activators, introns and exons RNAm modifications. RNAr, RNAm, RNAt, RNAi, RNAs. Splicing	2
		<i>The genetic code</i>	Starting and stop codons. Aminoacid activation.
	Aminoacil-tRNA sintetase		1
	<i>Protein synthesis</i>	Starting and ending	1
		Protein isolation and purification.	1
2.CATALISYS AND METABOLISM REGULATION(TOT.2HOURS) [Knowledge of enzyme kinetics]	<i>Enzymes</i>	Enzyme catalysis, structure and function .	1
	<i>Enzyme kinetics</i>	Techniques for the study of enzyme kinetics, allosteric enzymes.	1
	<i>Glucidic metabolism</i>	Glycogenolysis, glycolisis, Cori cycle	1

3.(TOT.13 OURS) [Knowledge of the main metabolic pathways and their regulation]		Metabolism regulation	1
		Gluconeogenesis, pyruvate dehydrogenase, carboxilase,	1
		Rumen fermentations	1
	Lipid metabolism	Fatty acid catabolism	1
		Ketogenesis and ketosis during starvation and lactation	1
		Fatty acid biosynthesis	1
	Intermediary metabolism	Krebs cycle	1
		Respiratory chain	2
	Nitrogen metabolism	Transdesamination and aminoacidic catabolism	1
		Ureogenesis	1
		Purine and pirimidine metabolism	1
4.TISSUE BIOCHEMISTRY (TOT.5 HOURS) [Knowledge of the main biochemical tissue characteristics]	Liver	Liver biochemistry	1
	Nervous system	Biochemistry of nervous system	1
	Muscle	Muscle biochemistry	1
	Kidney	Kidney biochemistry	1
	Bone	Bone biochemistry	1
Practical			
Themes	Subjects	Specific subjects	hours
<ul style="list-style-type: none"> 5. LABORATORY WORK (TOT. 8 HOURS) [pratical skill of the main biochemical techniques] 	<ul style="list-style-type: none"> Haemoglobin extraction 	<ul style="list-style-type: none"> Blood sampling haemoglobin extraction and characterization by uv-vis spectra. 	2
	<ul style="list-style-type: none"> Ion exchange chromatography 	<ul style="list-style-type: none"> Haemoglobin purification by DEAE 	2
	<ul style="list-style-type: none"> Gelfiltration chromatograph 	<ul style="list-style-type: none"> Haemoglobin fractionation by 	2

	<i>y</i>	gelfiltration	
	<ul style="list-style-type: none"> <i>DNA extraction</i> 	<ul style="list-style-type: none"> DNA extraction and ethanol treatment 	2