

**2011/12 YEAR 1<sup>ST</sup> SEMESTER      GENERAL MEDICINE AND DENTISTRY  
PROGRAM OF BIOCHEMISTRY**

<b>WEEK</b>	<b>DATE</b>	<b>LECTURE</b>	<b>SEMINAR</b>	<b>PRACTICE</b>
<b>1</b>	September 5-9.	<u>Proteins and bioenergetics:</u> structure and function of proteins, thermodynamics of living systems		General information, work safety, principles of lab work (practical note)
<b>2</b>	September 12-16.	<u>Enzymology:</u> enzyme classes, coenzymes, characterisation of enzymes, isoenzymes, multienzyme systems		Determination of protein concentration  -determination of total protein -determination of albumin  -photometry
<b>3</b>	September 19-23.	<u>Enzymology:</u> molecular mechanism of catalysis, enzyme kinetics, modulation and regulation of enzyme activity		Substrate specificity and temperature optimum of amylase enzyme activity (practical note)
<b>4</b>	September 26.-30	<u>Carbohydrate metabolism:</u> Digestion and absorption of carbohydrates, glycolysis, pyruvate dehydrogenase enzyme complex, gluconeogenesis	SEMINAR (proteins, enzymes)  -schedule of lectures (proteins, enzymes) -coenzymes -enzyme classes	
<b>5</b>	October 3-7.	<u>Carbohydrate metabolism:</u> Fructose and galactose metabolism, glycogen metabolism, pentose phosphate cycle and glucuronide shunt		Assay of activity of alkaline phosphatase (practical note)
<b>6</b>	October 10-14.	<u>Carbohydrate metabolism:</u> regulation of blood glucose level, glycoproteins  <u>Lipid metabolism:</u> Eicosanoids, digestion and absorption of lipids, lipoprotein metabolism	SEMINAR (carbohydrate metabolism)  -schedule of lectures (carbohydrates) -glucuronic acid	

<b>7</b>	October 17-21.	<u>Lipid metabolism:</u> lipid mobilisation, oxidation of fatty acids, ketone bodies, diabetes mellitus		Determination of glucose-6-phosphatase activity (practical note)  -turbidimetry and nephelometry
<b>8</b>	October 24-28.	<u>Lipid metabolism:</u> Synthesis of fatty acids, synthesis of triacyl glycerols and phospholipids, sphingolipids, cholesterol and steroid metabolism	<b>1<sup>st</sup> MTO</b> -tests to practice	
<b>9</b>	October 31- November 4	VACATION		
<b>10</b>	November 7-11.	<u>Amino acid metabolism:</u> Digestion and absorption of proteins, catabolism of essential amino acids, fate of amino group, urea cycle	SEMINAR (lipid metabolism) -schedule of lectures (lipids)	
<b>11</b>	November 14-18.	<u>Amino acid metabolism:</u> metabolism of non-essential amino acids, fate of carbon skeleton of amino acids, one-carbon units, glutathione		Determination of triacyl glycerol and cholesterol
<b>12</b>	November 21-25.	<u>Amino acid metabolism:</u> Synthesis of hem and porphyrine, enterohepatic circulation of hem degradation products	SEMINAR (amino acid metabolism) <b>2<sup>nd</sup> MTO</b>	
<b>13</b>	November 28.-Dec. 2	<u>Citric acid cycle:</u> steps and regulation of the cycle, relationship between the cycle and other metabolic pathways	SEMINAR (citric acid cycle, respiratory chain, oxidative phosphorylation)	
<b>14</b>	December 5-9.	<u>Mitochondrial transport systems, mechanism of respiratory chain and oxidative phosphorylation</u>		Investigation of the oxygen consumption of isolated mitochondria (practical note)
<b>15</b>	December 12-16.	<u>Nucleotide metabolism:</u> synthesis and degradation of purine and pirimidine nucleotides, salvage pathways, synthesis of deoxyribonucleotides		Nucleotide metabolism Determination of uric acid concentration -determination of uric acid