

**2015/16 YEAR 1<sup>ST</sup> SEMESTER      GENERAL MEDICINE  
PROGRAM OF BIOCHEMISTRY**

<b>WEEK</b>	<b>DATE</b>	<b>LECTURE</b>	<b>SEMINAR</b>	<b>PRACTICE</b>
<b>1</b>	Aug 31- Sept 4.	<u>Proteins and bioenergetics:</u> structure and function of proteins, thermodynamics of living systems		General information, work safety, principles of lab work
<b>2</b>	September 7-11.	Enzymology: enzyme classes, coenzymes, characterisation of enzymes, isoenzymes, multienzyme systems		Determination of protein concentration
<b>3</b>	September 14-18.	Enzymology: molecular mechanism of catalysis, enzyme kinetics, modulation and regulation of enzyme activity		Substrate specificity and temperature optimum of amylase enzyme activity
<b>4</b>	September 21-25.	Carbohydrate metabolism: Digestion and absorption of carbohydrates, glycolysis, pyruvate dehydrogenase enzyme complex, gluconeogenesis	SEMINAR (proteins, enzymes)	
<b>5</b>	Sept 28- October 2.	<u>Carbohydrate metabolism:</u> Fructose and galactose metabolism, glycogen metabolism, pentose phosphate cycle and glucuronide shunt		Assay of activity of alkaline phosphatase
<b>6</b>	October 5-9.	<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)	
<b>7</b>	October 12-16.	<u>Lipid metabolism:</u> lipid mobilisation, oxidation of fatty acids, ketone bodies, diabetes mellitus		Determination of glucose-6- phosphatase activity
<b>8</b>	October 19-22.	<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>	

<b>9</b>	October 26-30	<u>Amino acid metabolism:</u> Digestion and absorption of proteins, catabolism of essential amino acids, fate of amino group, urea cycle	SEMINAR (lipid metabolism)	
<b>10</b>	November 2-6.	<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>11</b>	November 9-13.	<u>Amino acid metabolism:</u> Synthesis of hem and porphyrine, enterohepatic circulation of hem degradation products	SEMINAR (amino acid metabolism)	
<b>12</b>	November 16-20.	<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>2<sup>nd</sup> MTO</b>	
<b>13</b>	November 23-27.	<u>Mitochondrial transport systems, mechanism of respiratory chain and oxidative phosphorylation</u>		Investigation of the oxygen consumption of isolated mitochondria
<b>14</b>	Nov 30- Dec 4	<u>Nucleotide metabolism:</u> synthesis and degradation of purine and pyrimidine nucleotides, salvage pathways, synthesis of deoxyribonucleotides		Nucleotide metabolism Determination of uric acid concentration