**Course Description Form**

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| 1. Course Name:
 |
| Biochemistry  |
| 1. Course Code:
 |
| 404CHBC2 |
| 1. Semester / Year:
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| Year  |
| 1. Description Preparation Date:
 |
| 1/ 10/ 2024  |
| 1. Available Attendance Forms:
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| Weekly / obligatory(mandatory) |
| 1. Number of Credit Hours (Total) / Number of Units (Total)
 |
|  60 hours- 6 – unit  |
| 1. Course administrator's name (mention all, if more than one name)
 |
| Name: Assist. Prof. Khalid Shaalan Sahab Email: Khalidshalaan@yahoo.com   |
| 1. Course Objectives
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| **Course Objectives** | * Define the metabolism and it is importance
* Biosynthesis of molecules of cells
* Catabolism of dietary molecules to liberation the energy
* Define the fates of molecules(clinical importance) that produced from metabolism
* Knowledge the chemistry of blood
* Define the determination methods used to estimation the blood molecules and it is applications
* Teaching and learning the students any essential and necessary information related to biochemistry.
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| 1. Teaching and Learning Strategies
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| **Strategy** | * Lecture method and use of interactive whiteboard with explanation and clarification
* Provide students with the basics and additional topics related to the outcomes of thinking and biochemical analysis
* Homework that requires subjective explanations in causal ways
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| 1. Course Structure
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| **Week**  | **Hours**  | **Required Learning Outcomes**  | **Unit or subject name**  | **Learning method**  | **Evaluation method**  |
| 1 | 2 | Introduce biochemical processes to students | Introduction to metabolism | Board and interactive whiteboard  | * Daily exams
* Homework
* Monthly exams
 |
| 2 | 2 | Digestion and absorption of dietary carbohydrate | Nutrition / Digestion and absorption of dietary carbohydrate | = | = |
| 3 | 2 | -Fate of absorbed glucose/-glycolysis and formation of pyruvate | Catabolism of glucose | = | = |
| 4 | 2 | Conversion of pyruvate to acytyl-CoA/Krebs cycle | Explain Krebs cycle | = | = |
| 5 | 2 | Energy calculation from catabolism of glucose,Conversion of pyruvate to lactate and Cori cycle | Energy liberated from catabolism of glucose/Cori cycle | = | = |
| 6 | 2 | Glycogenesis and glycogenolysis | Glycogenesis and glycogenolysis | = | = |
| 7 | 2 | -Gluconeogenesis-pentose phosphate pathway | Gluconeogenesis andpentose phosphate pathway | = | = |
| 8 | 2 | First exam of first course |  |  |  |
| 9 | 2 | Digestion and absorption of dietary lipidsBeta-oxidation of fatty acids | Nutrition / Digestion and absorption of dietary lipidsBeta-oxidation of fatty acids | = | = |
| 10 | 2 | Energy from oxidation of fatty acidsFatty acids Biosynthesis | Energy from oxidation of fatty acidsFatty acids Biosynthesis | = | = |
| 11 | 2 | Biosynthesis of Triglycerides and phospholipids | Biosynthesis of Triacylglycerol and phospholipids | = | = |
| 12 | 2 | Biosynthesis of cholesterolKetone bodies | Biosynthesis of cholesterolKetone bodies | = | = |
| 13 | 2 | Nutrition / Digestion and absorption of dietary proteins/State of oxidation of amino acids | -absorption of dietary proteins/-Oxidative-degradation State of amino acids | = | = |
| 14 | 2 | Transformation of amino group in liver | Transformation of amino group in liver | = | = |
| 15 | 2 | Glutamine transfer amino from extra-hepatic cells to liver | Glutamine transfer of amino group via blood to liver | = | = |
| 16 | 2 | Alanine transfer amino group from muscles to liver | alanine transfer amino via blood to liver | - | = |
| 17 | 2 | Second exam of first course |  |  |  |
| 18 | 2 | Excretion methods of nitrogen and urea cycle |  | = | = |
| 19 | 2 | Urea cycle and Krebs cycle | Krebs bicycles/ aspartate-argininosuccinate shunt | = | = |
| 20 | 2 | Genetic defects of urea cycle enzymes | Genetic defects of urea cycle enzymes | = | = |
| 21 | 2 | Metabolism of nucleotides/ anabolism of purine nucleotides | Metabolism of nucleotides | = | = |
| 22 | 2 | Anabolism of pyrimidine nucleotidesCatabolism of nucleotides | Metabolism of nucleotides | = | = |
| 23 | 2 | Replication and transcription of DNA | Replication, transcription and translation of genetic information | = | = |
| 24 | 2 | Translation of genetic information and biosynthesis of proteins | Replication, transcription and translation of genetic information | = | = |
| 25 | 2 | First exam of second course |  |  |  |
| 26 | 2 | Constituents of blood/ Blood proteins and its biological role | Blood chemistry | = | = |
| 27 | 2 | Red and white blood cells and its biological role | Blood chemistry | = | = |
| 28 | 2 | Human nutrition | Human nutrition | = | = |
| 29 | 2 | Human nutrition | Human nutrition | = | = |
| 30 | 2 | Second exam of second course |  |  |  |

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| 1. Course Evaluation
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| Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc  |
| 1. Learning and Teaching Resources
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| Required textbooks (curricular books, if any) |  |
| Main references (sources) | **1- Harpers Illustrated Biochemistry,** **2- Principle of Bio Chemistry, Smith & White****3- Biochemistry by Armstrong****4-Lehninger Principle of Bio Chemistry** |
| Recommended books and references (scientific journals, reports...) |  |
| Electronic References, Websites |  |