**ACADEMIC DISCIPLINE OVERVIEW**

1. **Program data**

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| **1.1.** | **GRIGORE T. POPA UNIVERSITY OF MEDICINE AND PHARMACY IASI** | | | | | | | |
| **1.2.** | **FACULTY OF MEDICAL BIOENGINEERING** | | | | | | | |
| **1.3.** | **PROGRAMME:** Physio-kinetotherapy and rehabilitation | | | | | | | |
| **1.4.** | **STUDY FIELD:** Health | | | | | | | |
| **1.5.** | **STUDY CYCLE**: UNDERGRADUATE | | | | | | | |
| **1.6.** | **STUDY PROGRAMME:** INENGLISH | | | | | | | |
| 1. **Subject data** | | | | | | | | |
| **2.1.** | **Subject: BIOCHEMISTRY RE1102** | | | | | | | |
| **2.2.** | **Module leader: Lecturer Cheptea Corina PhD** | | | | | | | |
| **2.3.** | **Seminar leader: Assistant Postaru Madalina PhD** | | | | | | | |
| **2.4. Year of study** | | **I** | **2.5. Semester in which is taught** | **1-st** | **2.6. Evaluation type** | Exam | **2.7. Subject status** | Mandatory |

1. **Estimated total time (hours/semester of didactic activity)**

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| **3.1.Number of hours / week** | 2 | **3.2. Courses number of hours / week** | 1 | **3.3.Seminar / l practical classes** | 1 |
| **3.4.Total number of learning hours** | 28 | **3.5. Courses** | 14 | **3.6. Seminar / practical classes** | 14 |
| **3.7.Distribution of the available time** | | | | | Hours |
| **Study based on the manual, lecture support, bibliography and hand notes** | | | | | 10 |
| **Supplementary documentation in the library, using specialised platforms via internet and by field work** | | | | | 6 |
| **Preparation for seminars / practical classes, study themes, reviews, portofolio, and essays** | | | | | 6 |
| **Tutorship** | | | | | 2 |
| **Examinations** | | | | | 2 |
| **Other activities** | | | | | - |
| **3.8. Total hours of individual study** | | | | | 22 |
| **3.9. Total hours pes semester** | | | | | 50 |
| **3.10. Number of credits** | | | | | 2 |

1. **Preconditions (where applicable)**

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| **4.1.** of curriculum | Not necessary |
| **4.2.** of competences | Not necessary |

1. **Conditions (where applicable)**

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| **5.1.** for lectures | Not necessary |
| **5.2.** for seminars / practical classes | The glassware needed in the chemistry lab. Materials, reagents and solvents. Equipment and specific instruments.  Students will wear protective clothing (lab coat, disposable gloves) |

1. **Specific competences acquired**

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| Professional competences (expressed as knowledge and abilities) | Description of the concepts, theories and fundamental concepts of physiological and pathological mechanisms of the human body, recognition of the symptoms and clinical signs, identification methods and techniques of kinetophysiotherapy  The formulation of the hypotheses and operationalization of the key concepts to explain syndromes and / or diseases. Using the parameters appropriate techniques to increase articular mobility, muscle strength, coordination, balance, the improvement of the modified parameters: cardiovascular. |
| Transverse competences (of role, of professional development, personal) | The identification of the objectives to be achieved, the resources available, the conditions for completion of their work flow, working time, deadlines and related risks.  CT2. The identification of the roles and responsibilities in a multidisciplinary team and application techniques and effective work relationships within the team and the relationship with the patient. |

1. **Objectives of the study discipline (according to the grid of specific competences acquired)**

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| **7.1.** General objective | The course aims is to broaden the knowledge regarding the biological parameters in general and their mechanisms of action.  Explaining the used processes underlying of the clinical laboratory methods ;  Using proper terminology and a consistent expression;  Solving practical problems. |
| **7.2.** Specific objectives | Learning the basic principles of methods and analytical techniques used in the clinical laboratory for the determination of organic and inorganic components of the biological samples;  Acquiring knowledge for the preparation of the biological material and fair processing of results;  Formation of the practical work skills . |

1. **Contents**

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| **8.1. Lecture** | **Teaching methods** | **Observations** |
| Introduction to the biochemistry study. Amino acids, peptides, proteins, structures, biological functions; the biomedical importance. | Free exposure  PowerPoint  Presentation | 6 |
| The conformation and dynamics of the biochemical structures exemplified by the relationship between three-dimensional structure of the proteins and their biological function | Free exposure  PowerPoint  Presentation | 4 |
| Informational macromolecules: structure, properties, biosynthesis and catabolism | Free exposure  PowerPoint  Presentation | 2 |
| The process of generation and storage of the metabolic energy | Free exposure  PowerPoint  Presentation | 2 |
| **Bibliography**  **mandatory**  - Rodney Boyer, Biochemistry Laboratory, modern theory and techniques, 2nd edition, Pearson Education, Inc., 2012;  - Harper’s Biochemistry 24th Edition  - Carl A. Burtis, Edward R. Ashwood, David E. Bruns, Tietz Textbook of Clinical Chemistry and Molecular Diagnosis (5th edition), Elsevier, St. Louis, USA, 2012  **selective**  - Pamela C. Champe, Biochemistry, 2nd Edition, J. B. Lippincott Company  - J. H. Weil, Biochimie gėnėrale, 4e**me**  ėdition, Masson 1983 | | |
| **8.2. Seminar / practical classes** | **Teaching methods** | **Observations** |
| 1. Biological products used in the laboratory. | Free exposure  interactive discussions  Performing the lab work, obtaining the experimental data results | 2 |
| 2. Spectrophotometry | Free exposure  interactive discussions  Performing the lab work, obtaining the experimental data results | 2 |
| 3. Determination of serum transaminases. | Free exposure  interactive discussions  Performing the lab work, obtaining the experimental data results | 2 |
| 4.The determination of pancreatic amylase in serum and urine. | Free exposure  interactive discussions  Performing the lab work, obtaining the experimental data results | 2 |
| 5. Determination of serum glucose | Free exposure  interactive discussions  Performing the lab work, obtaining the experimental data results | 2 |
| 6. Bilirubin in the blood.  Determination of lactate dehydrogenase activity. | Free exposure  interactive discussions  Performing the lab work, obtaining the experimental data results | 2 |
| 7. Dosage of the uric acid; The summary urine examination; The urinary sediment. | Free exposure  interactive discussions  Performing the lab work, obtaining the experimental data results | 2 |
| **Bibliography**  **mandatory** 1. Oxford Handbook of Clinical and Laboratory Investigation, Oxford University Presss, 2018. | | |

1. **Correlation of the discipline contents with the expectations of the epistemic community, professional associations, and representative employers from the afferent program field**

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| Knowledge and abilities are established as didactic objectives and specified as such in the analytic programs that are revised yearly. After their analysis by the study discipline staff, these are discussed and approved in the Curricular Committee, towards curricular harmonization among the various study disciplines. Along this entire process systematic evaluation is performed, directly if possible, regarding the correspondence of the contents to the expectations of the academic community and of the representatives of the social community, professional associations, and employers. |

1. **Evaluation**

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| Type of activity | Type of activity | Evaluation methods | Contribution to the final grade |
| Lecture | Acquiring the concepts and theoretical information presented in the course | Written exam | 50% |
| Seminar/practical classes |  | Activity during the year | 10% |
| Theme for practical works | Colocviu for practical activity | 40% |
| Minimal performance standard: Minimum passing condition is 5 | | | |

**Date of completion: Signature of head of discipline**

25.09.2019 **Lecturer Cheptea Corina PhD**

**Department approval date**

30.09.2019

**Signature of department director**

Lecturer Daniela-Viorelia Matei, Ph-D