**SYLLABUS**

**regarding the qualification cycle FROM 2023 TO 2024**

1. Basic Course/Module Information

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| --- | --- |
| Course/Module title | Embryology and Genetics |
| Course/Module code \* |  |
| Faculty (name of the unit offering the field of study) | Medical College of Rzeszow University  Institute of Health Sciences |
| Name of the unit running the course | Institute of Medical Sciences |
| Field of study | obstetrics |
| Qualification level | undergraduate degree |
| Profile | PRACTICAL |
| Study mode | full-time |
| Year and semester of studies | 2023/2024 |
| Course type | LECTURES, LABORATORY |
| Language of instruction | ENGLISH |
| Coordinator | aLEKSANDER mYSZKA, Phd |
| Course instructor | aLEKSANDER mYSZKA, Phd |

\* - as agreed at the faculty

1.1.Learning format – number of hours and ECTS credits

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester  (n0.) | Lectures | Classes | Colloquia | Lab classes | Seminars | Practical classes | Internships | others | **ECTS credits** |
| I/II | 10 | - | - | - | - | - | - | 10 | 5 |

1.2. Course delivery methods

- conducted in a traditional way

- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)

Lecture: pass with a grade.

2. Prerequisites

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| knowledge of biology at the secondary school level |

3. Objectives, Learning Outcomes, Course Content, and Instructional Methods

3.1. Course/Module objectives

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| --- | --- |
| O1 | Student should be able to:  1. Describe the structure and organization of genes, chromosomes and the human genome.  2. Describe the various mutations and genetic abnormalities which can result in genetic diseases.  3. Describe DNA technology and its application in the identification and analysis of disease genes.  4. Describe developmental events during prenatal development  5. Describe teratological factors. |
| O2 | Student applies the molecular mechanisms to describe the prenatal development, pathology and physiological processes |

3.2. Course/Module Learning Outcomes (to be completed by the coordinator)

|  |  |  |
| --- | --- | --- |
| Learning Outcome | The description of the learning outcome  defined for the course/module | Relation to the degree programme outcomes |
| LO\_01 | PROCESSES OF SPERMATOGENESIS, SPERMIOGENESIS AND OVOGENESIS, INSEMINATION AND FERTILIZATION. | A.W11. |
| LO\_02 | Describe developmental events during prenatal development | A.W12. |
| LO\_03 | human blood group and serological conflict in the Rh System | A.W13. |
| LO\_04 | Describe the structure and organization of genes, chromosomes and the human genome. | A.W14. |
| LO\_05 | principles of inheritance of traits and inheritance of non-nuclear genetic information | A.W15. |
| LO\_06 | Describe the various mutations and genetic abnormalities which can result in genetic diseases. | A.W16. |
| LO\_07 | Describe DNA technology and its application in the identification and analysis of disease genes. | A.U4. |
| LO\_08 | Prevention of genetic diseases and prenatal diagnosis | A.U5. |

**3.3. Course content (to be completed by the coordinator)**

1. Lectures

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| Content outline |
| Gametogenesis, Fertilization,  Organogenesis  Teratogenesis,  Mechanisms of Sex Determination,  Genetic variation, mutations, polymorphisms,  Autosomal recesive and dominant inheritance,  Sexlinked inheritance,  Multifactorial inheritance,  Clinical cytogenetics,  Disorders of metabolism,  Genetic testing,  Immunogenetics,  Developmental genetics,  Cancer genetics,  Gene therapy,  Pharmacogenetics, |

3.4. Methods of Instruction

e.g.

*Lecture: a problem-solving lecture/a lecture supported by a multimedia presentation/ distance learning*

*Classes: text analysis and discussion/project work (research project, implementation project, practical project)/ group work (problem solving, case study, discussion)/didactic games/ distance learning*

*Laboratory classes: designing and conducting experiments*

Seminar with a multimedia presentation   
Classes: individual work, work with instruction, discussion

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

|  |  |  |
| --- | --- | --- |
| Learning outcome | Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes) | Learning format (lectures, classes,…) |
| LO-01 | TEST | Lectures |
| LO-o2 | Lectures |
| LO-o3 | Lectures |
| LO-o4 | Lectures |
| LO-o5 | Lectures |
| LO\_06 | Lectures |
| LO\_07 | Lectures |
| LO\_08 | Lectures |

4.2 Course assessment criteria

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| Passing the written tests (including 20 questions) – The grading scale F-A |

5. Total student workload needed to achieve the intended learning outcomes

– number of hours and ECTS credits

|  |  |
| --- | --- |
| Activity | Number of hours |
| Scheduled course contact hours | 10 |
| Other contact hours involving the teacher (consultation hours, examinations) | 10 |
| Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.) | 105 |
| Total number of hours | 125 |
| Total number of ECTS credits | 5 |

\* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

|  |  |
| --- | --- |
| Number of hours | *-* |
| Internship regulations and procedures | *-* |

7. Instructional materials

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| Compulsory literature:  Medical Genetics: With STUDENT CONSULT Online Access, Jorde L.B., Carey J.C., Bamshad M.J. 2019, 4 edition |
| Complementary literature:  Human Molecular Genetics, Strachan T., Read A., 2019, 4 edition, |

Approved by the Head of the Department or an authorised person