**SYLLABUS**

1. **Programme Details**

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| **1.1.** | **GRIGORE T. POPA UNIVERSITY OF MEDICINE AND PHARMACY IASI** |
| **1.2.**  | **FACULTY : MEDICINE / DEPARTMENT: MEDICALA II** |
| **1.3.** | **DISCIPLINE: ENDOCRINOLOGY** |
| **1.4.**  | **FIELD of STUDY: MEDICINE** |
| **1.5.** | **STUDY CYCLE: BACHELOR**  |
| **1.6.** | **PROGRAMME of STUDY: English**  |
| 1. **Discipline Details**
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| **2.1.** | **Name of the Discipline: ENDOCRINOLOGY** |
| **2.2.** | **Teaching staff in charge with lectures:Prof. dr. Dumitru Branisteanu, Conf. Dr. Cristina Preda** |
| **2.3.** | **Teaching staff in charge with seminar : sef lucrari dr. MC Ungureanu, asist dr. S. Mogos, asist dr. Laura Teodoriu, asist. Dr. Catalin Buzduga, conf. Dr. Cristina Preda** |
| **2.4. Year**  | **v** | **2.5. Semester** | **I/II** | **2.6. Type of evaluation**  | E1/E2 | **2.7. Discipline regimen**  | Compulsory |

1. **Overall Time Estimates (hours/semester of didactic activity)**

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| * 1. **Number of hours per week**
 | 7 | **Of which: 3.2. lectures** | 3 | * 1. **seminar/ laboratory**
 | 4 |
| * 1. **Total hours in the curriculum**
 | 52 | **Of which: 3.5. lectures** | 24 | **3.6. seminar/ laboratory** | 28 |
| **Distribution of time**  |  |  |  |  | Hours |
| **Study time using coursebook materials, bibliography and notes**  | 10 |
| **Further study time in the libray, online and in the field** | 10 |
| **Preparation time for seminars / laboratories, homework, reports, portfolios and essays** | 10 |
| **Tutoring** | 5 |
| **Examinations** | 15 |
| **Other activities** | 0 |
| **3.7. Total hours of individual study** |  | 50 |
| **3.8. Total hours / semester** |  | 102 |
| **3.9. Number of credits**  |  |  4 |

1. **Prerequisites (where applicable)**

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| **4.1. curriculum** | NOT APPLICABLE |
| **4.2. competences** | NOT APPLICABLE |

1. **Conditions (where applicable)**

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| **5.1. for lecture delivery** | NOT APPLICABLE |
| **5.2. for seminar / laboratory delivery** | NOT APPLICABLE |

1. **Specific Competences Acquired**

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| **Professional Competences (knowledge and skills)** | * To make the diagnosis of a pituitary tumor
* Interpretation of a radiograph of the skull and sella turcica
* To make and to interpret a visual field determination
* Interpretation of a growth deficiency by comparison with
* Interpretation of bone age on a wrist radiograph
* To know the stages of normal pubertal development in boys and girls
* Interpretation of basal and dynamic tests in all endocrine axis
* To establish the diagnosis of pituitary dwarfism and pituitary insufficiency in adults. Methods of follow-up in patients with these diseases.
* To establish the diagnosis of acromegaly, hyperprolactinemia, on clinical hormonal and imagery data and patients’ follow-up
* To establish the diagnosis a diabetes insipidus, patients treatment and follow-up
* Clinical examination of thyroid gland. To identify thyroid clinical detectable abnormalities To interpret a thyroid ultrasound examination and to calculate thyroid volume.
* To interpret a thyroid scintigram
* Clinical diagnosis of hypothyoridism. Follow-ul of the patients under treatment
* Clinical diagnosis of congenital mixedema. To know the possibilities of neonatal screening for congenital mixedema.
* Clinical diagnosis of hyperthyroidism, indication for investigations and treatment
* Diagnosis of tetany. Haw to provoke the tetany signs.
* Diagnosis and treatment of acute tetany crisis
* Clinical and hormonal diagnosis of adrenal insufficiency. Emergency treatment of adrenal crisis Clinical diagnosis and assessment of Cushing’s disease.
* Clinical diagnosis and basic investigations in congenital adrenal hyperplasia
* Clinical diagnosis and emergency treatment of hypertension due to a pheocromocytoma.
* Clinical diagnosis and principle of treatment in gonadal dysgenesis.
* To know the principels of assessment of assessment of an infertile couple
* Interpretation of a normal and abnormal spermogram.
* How to interpret most important imagery data CT, IRM, ultrasound and DXA examination in endocrine diseases
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| **Transversal Competences (roles, personal and professional development)** |  |

1. **Obiectives of the Discipline (related to the acquired competences)**

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| **7.1. General Obiective** | Fundamental notions about physiology of the main endocrine glands ( hormone definition, structure, receptor, mechanism of action, regulation)and endocrine diseases. |
| **7.2. Specific Obiectives**  | Hypo and hyperfunction of pituitary, thyroid gland, parathyroids, cortical adrenal adrenal medulla, gonads (etiology, clinical diagnosis, laboratory assessement, treatment).Endocrine therapy in general pathology-glucocorticoids, hormone replacement therapy, hormonetherapyinhibition(antagonists andselectivemodulators of the receptors, inhibitors ofsynthesis). |

1. **Contents**

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| **8.1. Lecture** | **Teaching methods**  | **Comments** |
| 1.Introduction: what is the purpose of study of endocrinology. History of development of endocrinology in the world. Hormones: structure and actions – genetic and molecular basis. The role of endocrine system in body function: growth and development, metabolisms, reproduction and behavior.Geneticand molecularbasesofhormonesynthesis andaction(receptors, mechanisms of action) The hypothalamus. Hypothalamic hormones: releasing hormones, vasopressin, oxitocine. Hypothalamic diseases: diabetes insipidus, anorexia nervosa. The pituitary. Pituitary hormones: structure, actions, regulation, clinical use. Endocrine axes: definition and assesment. | POWERPOINT PRESENTATION |  |
| 2. Pituitary hormones: structure,action, regulation. Endocrineaxis: definition and exploration. Pituitary tumors. Anatomic and functional classification. The symdrom of pituitary tumor. Algorithms for pituitary tumors assessment. Acromegaly: etiopathogeny, clinical symptoms, assessment and therapy. Hyperprolactinemia: atiopathogeny, assessment, treatment. Pituitary secreting adenoma of ACTH, TSH, gonadotropins: prevalence, clinical data, assessment and therapy. | POWERPOINT PRESENTATION |  |
| 3. Pituitary insufficiency in adult: ethiopathogeny, clinical and hormonal diagnosis, complications and treatment. Clinical symptoms and assessment of growth failure disorders. Pituitary insufficiency in children: ethiopathogeny, clinical symptoms, assessement and treatment. Clinical and biologicalassesment of growth and development abnormalities. | POWERPOINT PRESENTATION |  |
| 4.The thyroid gland. Thyroid hormones, actions, metabolism and regulation. Assessement of thyroid axis. Iodine deficiency disorders: epidemiological criteria, physiopathology, clinical presentation: endemic goiter and endemic cretinism. Iodine deficiency disorders: prophylaxis and treatment. | POWERPOINT PRESENTATION |  |
| 5. AdultHypothyroidism-etiology, pathophysiology, clinicaland laboratorydiagnosis,treatment.Thyrotoxicosis: classification, causes, physiopathology, assessment.Clinical forms ofthyrotoxicosis: Graves disease, toxic multinodular goiter, toxic adenoma, clinical symptoms, diagnosis and treatment. Hypothyroidism: causes, physiopathology, symptoms, assessment and treatment. Congenitalmixoedema and hypothyroidism in childhood: causes, screening for congenital mixoedema. | POWERPOINT PRESENTATION |  |
| 6. Thyroiditis: acute and subacute: causes, symptoms, assessment and treatment. Autiommune thyroiditis: ethiopathogeny, clinical forms, assessment and treatment. Other chronic thyroiditis. Nodular goiter: clinical forms, diagnosis and therapy. Thyroid cancers (differentiated thyroid cancer -papillaryandfollicular, medullary thyroidcancer, undifferentiatedcancer) classification, diagnosis, treatment and follow-up. | POWERPOINT PRESENTATION |  |
| 7. Endocrine control of calcium and phosphorus metabolism and bone biology. Parathomone: structure, actions and regulation. Hypoparathyroidism: causes, clinical symptoms, assessment and treatment. Chronic tetany : clinical signs, therapy . Hyperparathyroidism: clinical forms, causes, symptoms, assessment and treatment. Osteoporosis: causes, biological and imagery diagnosis, treatment. | POWERPOINT PRESENTATION |  |
| 8. The adrenal gland: structure, Steroidogenesis. Glucocorticoids, mineralocorticoids and adrenal androgens: structure, functions, steroid receptors. Treatment with glucocorticoids: principles, adverse effects. Algorithm of assessment of adrenal gland. Adrenal insufficiency: causesm, symptoms, diagnosis and treatment. Adrenal crisis: conditions of development, symptoms, assessment and treatment. Precautions in patients with adrenal insufficiency with different diseases, invasive investigations, surgery. Follow up. | POWERPOINT PRESENTATION |  |
| 9.Cushing’s disease and Cushing’s syndrome: causes, clinical symptoms, investigations and treatment.Diagnosis anddifferential treatmentdepending onthe clinical form.Congenital adrenal hyperplasia: ethipathogeny, clinical symptoms, screening in newborn. Genetics and prenatal diagnosis in fetuses with congenital adrenal hyperplasia. | POWERPOINT PRESENTATION |  |
| 10.Adrenal medulla. Bioshynthesis of catecolamins and their actions (receptors of catecolamins). Arterial hypertension of endocrine causes. Primary hyperadosteronism: causes, investigations and treatment. Pheocromocytoma: sumptoms, biological diagnosis, imagery and treatment. Multipleendocrineneoplasia: Definition, classification, diagnostic and therapy . | POWERPOINT PRESENTATION |  |
| 11.Prenataland postnatal sexualization. Puberty: determinism, chronological limits, stadialization. The testis. Testis hormones: synthesis, actions and regulation. Spermatogenesis. Male hypogonadism: classification, clinical features, assessment. Principles of testosterone therapy. Klinefelter syndrome: genetics, symptoms, diagnosis and treatment. The hypogonadism ogf the eldery man . | POWERPOINT PRESENTATION |  |
| 12 .The ovary. Ovarian hormones: structure, actions, ovarian cycle. Primary and secondary amenorheea: causes, clinical features, assessment and therapy. Principles of treatment with estrogens and progestagens.Polycystic ovarian disease: ethipathogeny, clinical and biological investigations, principle of treatment. Male and female infertility: causes, assessment , principles of treatment. Menopause and hormone replacement therapy in menopause. Use of hormones in non endocrine disease. use of hormones, antihormones and blokers of hormone receptors in the treatment of neoplastic diseases. Bioethics of hormone treatments. | POWERPOINT PRESENTATION |  |
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| **Bibliography**1. Cristina Preda, DD Branisteanu, Maria Christina Ungureanu, Letitia Leustean (sub redactia): Clinical Endocrinology, Ed. Grigore T. Popa, 2019
2. E.Zbranca ( sub redactia) : Endocrinologie – ghid de diagnostic si tratament , Editura Polirom. 2007;
3. Greenspan’s Basic and Clinical Endocrinology, 2018
4. Elecronic support of courses
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| **8.2. Seminar / Laboratory** | **Teaching** **methods**  | **Comments** |
| 1. Presentation of the file of patients with endocrine diseases. Technical principles of hormone assessment in blood and urine. Case presentation: hypothalamic disease: diabetes insipidus and anorexia nervoca. Water deprivation test: technique and interpretation of results. Vasopressin test: technique and interpretation. | CASE PRESENTATION |  |
| 2. Pituitary tumor syndrome. Interpretation of normal and pathological radiographs of sella turcica. Interpretation of a CT examination of hypothalamo/pituitary region. Techinque of determination and interpretation of visual field. Case presentation: acromegaly, prolactinoma, other pituitary tumors. | CASE PRESENTATION |  |
| 3. Technique and interpretation . Technique of assessment of growth and growth charts. Interpretation of a whrist radiograpfh for bone age. Case presentation: pituitary dwarfism and differential diagnosis with other growth deficiencies. Case presentation: pituitary insufficiency in adult patients. | CASE PRESENTATION |  |
| 4. Principles and interpretation of biological test regarding thyro function. Practical work in laboratory of scintigraphy : principles of thyroid scintigraphy and its interpretation. Principles thyroidultrasound evaluation, ultrasounddeterminationofthyroidvolumeand the role of echographyin the study ofthyroidpathology. Case presentation: endemic goiter and endemic cretinism. | CASE PRESENTATION |  |
| 5.Case presentations: different forms of thyrotoxicosis. Graves disease, toxic nodular goiter, toxic adenoma, thyroiditis with thyrotoxicosis: diagnosis, biological and imagery, treatment. | CASE PRESENTATION |  |
| 6. Case presentation : hypothyroidism in children : congenital mixedema and adults : hypothyroidism : clinical examination, hormonal test, diagnosis and treatment.  | CASE PRESENTATION |  |
| 7. Case presentation: thyroiditis subacute and chronic autoimmune thyroiditis with different forms. Imagery, immunologic test, biologic test, treatment. Ultrasound examination of thyroid nodules, technique of fine needle biopsy in thyroid nodules. Case presentation: thyroid cancers: diagnosis, treatment, principles of follow-up. | CASE PRESENTATION |  |
| 8.Case presentation : acute tetany and chronic tetany. Clinical diagnosis and treatment. Primary hyperparathyroidism: clinical presentation . The assesment of bone mass density andinterpretationosteodensitometry. Osteoporosis-clinical cases. | CASE PRESENTATION |  |
| 9.Principlesin performingand interpreting of basalanddynamictests in adrenalpathology. Case presentation: chronic adrenal insufficiency. | CASE PRESENTATION |  |
| 10. Cushing’s disease and Cushing’s syndrome : case presentation- clinical features, diagnosis and tretament. Congenital adrenal hyperplasia: case presentation- clinical features, assessment and treatment. | CASE PRESENTATION |  |
| 11. Clinical cases of pheocromocytoma and hyperaldosteronism. Basic test, biologic investigations, imagery ( ultrasound, CT, scintigraphy), diagnosis and principles of treatment. Multiple endocrine neoplasia : clinical cases.  | CASE PRESENTATION |  |
| 12. Clincal and ultrasound examination of the testis. Spermogram: technique and interpretation. Case presentation: different cases of hypogonadism: Kallman’s syndrome and Klinefelter syndrome. | CASE PRESENTATION |  |
| 13.Case presentation of ovarian pathology: Turner’s syndrome, polycystic ovary disease. | CASE PRESENTATION |  |
| 14. Precocious and delayed puberty: clinical cases. Diagnosis and principles of treatment. Inferitulity of the couple: principles for investigation: postcoital test, examination of cervical mucus, basal body temperature. | CASE PRESENTATION |  |
| **Bibliography**1. Cristina Preda, DD Branisteanu, Maria Christina Ungureanu, Letitia Leustean (sub redactia): Clinical Endocrinology, Ed. Grigore T. Popa, 2019
2. E.Zbranca ( sub redactia) : Endocrinologie – ghid de diagnostic si tratament , Editura Polirom. 2007;
3. Greenspan’s Basic and Clinical Endocrinology, 2018
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1. **Correlations between the contents of the discipline and the expectations of the epistemic community, of profesional associations and of employers in the 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. As primary goal the discipline intends to offer the students optimal background for the following years of study in the program for License in Medicine, in the perspective of successfully hiring, immediately after graduation, in residence programs from Romania and other EU countries |

1. **Evaluation**

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| **Type of activity**  | **10.1. Evaluation criteria:**  | **10.2. Methods of evaluation** | **10.3. Percentage of final grade** |
| **10.4. Lecture** | Grade for multiple choice test | standardized multiple choice test | 50% |
| **10.5. Seminar / Laboratory** | Average grade of ongoing examinations | ongoing evaluation | 10% |
| Grade for practical examination | practical exam | 40% |
| **Minimum standard of performance: at least grade 5 to pass the discipline** |

**Date: 15.10.2019 Signiture of Didactic Co-ordinator**

**Conf. Dr. Cristina Preda**

 **Signiture of Department Director Prof. Dr. Ioana Dana Alexa**