



General information	
Academic subject	Endocrinology of Human Reproduction
Degree course	Environmental Biology
Academic Year	Master's Degree
European Credit Transfer and Accumulation System (ECTS)	4
Language	Italian
Academic calendar (starting and ending date)	II Semester (March- June)
Attendance	No

Professor/ Lecturer	
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Virtual headquarters	Teams
Tutoring (time and day)	Every day after teacher appointment

Syllabus	
Learning Objectives	Acquire notions on the physiological aspects of the endocrinology of the reproductive system, with hints on Medically Assisted Procreation techniques.
Course prerequisites	Knowledge of Cellular Physiology and Systems; Basic knowledge of Cytology and Histology; knowledge of Human Anatomy
Contents	<p><u>Principles of endocrinology (part 1)</u>: classification of hormones; hormones synthesis and action mechanisms; hormone receptors.</p> <p><u>Principles of Endocrinology (part 2)</u>: Neuroendocrine control of reproductive function: hypothalamic-pituitary axis; Hormonal secretion: from childhood to puberty. Puberty. Menarche. Abnormal Puberty.</p> <p><u>Male reproductive system</u>: functional anatomy (spermatogenesis) Testicular hormones: androgens and estrogens; Biosynthesis, blood transport, catabolism, biological effects and mechanism of action; role of testosterone in the hormonal regulation of testicular and sexual function. Hormonal regulation of male sexual function: stimulation of the sexual act, orgasm and the role of oxytocin in fertilization.</p> <p><u>Female reproductive system (part 1)</u>: functional anatomy (development of the ovarian follicle ...) Ovarian hormones: Estrogens, Progestins, Ovarian androgens. Biosynthesis and mechanisms of action.</p> <p><u>Female reproductive system (part 2)</u>: Hormonal regulation of ovarian function: menstrual cycle and neuroendocrine regulation of the menstrual cycle; phases of ovarian activity (follicular and luteinic) and cyclic modifications of the ovary and uterus, feedback mechanisms. Interrelation between ovaries and other glands Premenstrual syndrome, abnormal uterine bleeding.</p> <p><u>Fertilization, Pregnancy and Childbirth</u>: Fertilization and Pregnancy:</p>

	<p>placental hormones. Childbirth and puerperium.</p> <p><u>Breastfeeding, Contraception and Fertility:</u> Milk formation and lactation. Contraceptives and fertility.</p> <p><u>Endocrine disorders of the reproductive system (part 1):</u> Menopause and male and female climacteric Alterations of female hormonal function: amenorrhea. Dysmenorrhea, polycystic ovary syndrome, endometriosis, hyperandrogenism.</p> <p><u>Endocrine disorders of the reproductive system (part 2):</u> Alterations of male hormonal function and testicular diseases: male hypogonadism, cryptorchidism, varicocele, testicular tumors. Hormone-secreting tumors: carcinoma of the breast, ovarian and cervical and endometrium, and prostate.</p> <p><u>Sterility and infertility:</u> Infertility Female, male and couple infertility. Techniques of medically assisted procreation (PMA).</p> <p>Seminar held by an expert on Medically Assisted Procreation Techniques.</p>
Books and bibliography	Teacher's notes and material provided during the lessons; "Endocrinologia Clinica" Fabrizio Monaco- Editrice SEU
Additional materials	Only the chapters related to the topics covered by the course.

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
100	30	2 (seminar)	68
ECTS			
4			
Teaching strategy			
	<p>Power-point presentations will be used to support teaching. All the teaching material presented in class will be made available to the student in electronic format and will be shared through the Teams platform. The power-point presentations are organized as introductory and explanatory material, useful for orienting the study on the textbook.</p>		
Expected learning outcomes			
Knowledge and understanding on:	<p>Knowledge of the general principles of hormone and receptor functioning; knowledge of all hormones related to reproductive function and their regulation mechanisms. Knowledge of different diseases related to sex hormones.</p> <p>Knowledge of the main techniques of Medically Assisted Procreation (PMA).</p>		
Applying knowledge and understanding on:	<p>Ability to correlate the deficit or hyperproduction of the various hormones to the different pathologies of the reproductive system and to discriminate the use of appropriate techniques of Fecundation.</p>		
Soft skills	<ul style="list-style-type: none"> Making informed judgments and choices Ability to direct the choice to the correct contraceptive use; Ability to correctly guide the choice to natural breastfeeding methods; Ability to direct the choice to the correct type of PMA method to be used 		



	<p>depending on the type of pathology.</p> <ul style="list-style-type: none"> Communicating knowledge and understanding Ability to describe the individual reproductive and nervous systems related to the reproductive system; Ability to describe the individual hormones, the type and nature of the hormone and the specific related receptor on the target organ; Ability to describe the disease caused by the deficiency or overproduction of a hormone in terms of symptoms, etiology and therapy; Ability to describe the different contraceptive techniques and PMA techniques. Capacities to continue learning Ability to deepen and update knowledge in the field of Human Reproduction and the hormones that regulate its functioning.
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Assessment and feedback	
Methods of assessment	<p>The exam consists of oral questions on the course program.</p> <p>The evaluation includes, in addition to the final oral exam, the possibility of take an ongoing test. The test consists of multiple-choice questions and open questions. The ongoing test may not be carried out in this academic year due to the epidemiological emergency from COVID-19.</p>
Evaluation criteria	<ul style="list-style-type: none"> Knowledge and understanding Describe the general principles of functioning of hormones and receptors; describe all the hormones related to reproductive function and their regulation mechanisms. Describe the different diseases related to sex hormones. Describe the main techniques of Medically Assisted Procreation (MAP). Applying knowledge and understanding Evaluate the deficit or overproduction of the various hormones and correlate them to the different pathologies of the reproductive system; evaluate and discriminate the use of appropriate reproduction techniques. Autonomy of judgment Orient the choice to the correct contraceptive use; to correctly direct the choice to natural breastfeeding methods; direct the choice to the correct type of PMA method to be used depending on the type of pathology present. Communication skills Describe the individual reproductive and nervous system related to the reproductive system; describe the individual hormones, the type and nature of the hormone and the specific related receptor on the target organ; to describe the pathology caused by the deficiency or overproduction of a hormone in terms of symptoms, aetiology and therapy; describe the different contraceptive techniques and PMA techniques. Capacities to continue learning To deepen and update knowledge in the field of Human Reproduction and the hormones that regulate its functioning.
Criteria for assessment and	<p>The final grade is awarded out of thirty. The exam is passed when the</p>



attribution of the final mark	grade is greater than or equal to 18. The final grade is determined by the average of the assessments obtained in the intermediate written test (if passed) and in the final oral exam.
Additional information	