



Univerza v Mariboru

Medicinska fakulteta

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Ime predmeta:	Ženska in moška neplodnost							
Course title:	Female and Male Infertility							
Študijski program in stopnja Study programme and cycle	Študijska smer Study option			Letnik Year of study	Semester Semester			
Biomedicinska tehnologija/3. stopnja				2	3 ali 4			
Biomedical Technology/3rd Degree								
Vrsta predmeta (obvezni ali izbirni) / Course type (compulsory or elective)				Izbirni				
				Elective				
Univerzitetna koda predmeta / University course code:								
Predavanja Lectures	Seminar Seminar	Vaje Tutorial			Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
15	20	10					135	6
		AV	LV	RV				
Nosilec predmeta / Course coordinator:				Prof. dr. Veljko Vlaisavljevič				
Jeziki /Languages:		Predavanja / Lectures:		Slovenski/Slovene				
		Vaje / Tutorial:		Slovenski/Slovene				
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:					Prerequisites for enrolling in the course or for performing study obligations:			
Vsebina (kratek pregled učnega načrta):					Content (syllabus outline):			
Definicija neplodnosti, oogeneza, fiziologija, preiskave, diagnostika in terapija ženske reproduktivne funkcije, ovulatorne disfunkcije, tubarne nepravilnosti, endometrioze, cervikalni faktorji, indukcije ovulacije, inseminacije, tehnik OBMP. Moška neplodnost, spermatogeneza, fiziologija, preiskave, diagnostika in terapija moške reproduktivne funkcije. Endokrinologija, farmakologija in terapija, ki vpliva na fiziološko funkcijo mod, fiziologija spočetja in ocena funkcije semenčic, imunologija in reproduktivna genetika, poznavanje kliničnega učinka hormonov, mikroskopska patologija povezana z moškim genitalnim sistemom, klinična kompetenca v obravnavi težav s plodnostjo in erektilno disfunkcijo.					Definition of infertility, oogenesis, physiology, examination, diagnostics and therapy of women's reproductive function, ovulatory disorders, tubal disorders, endometriosis, cervical factors, ovulation induction, insemination, MAR techniques. Male infertility, spermatogenesis, physiology, investigation, diagnosis and therapy of male reproductive function. Endocrine physiology, pharmacology and therapy that regulate testicular function, the physiology of conception and assessment of sperm function, immunology and genetics related to reproduction, a knowledge of clinical pharmacology of hormones, microscopic pathology related to male genital system, clinical competence in management of fertility problems and erectile dysfunction. Ability to perform and interpret semen analysis.			

<p>Sposobnost opraviti in interpretirati rezultate analize semenskega izliva. Usposabljanje v laboratoriju ter posameznikova osebna vključitev v proces opravljanja analiz semenskega izliva in ostalih preiskav, ki so povezane s funkcijo semenčic. Biopsija mod. Indikacije in metode asistirane reprodukcije. Ohranjanje plodnosti pri onkoloških pacientih.</p>	<p>Laboratory training with personal involvement in carrying out semen analyses and other tests in relation to sperm function. Indication and methods of assisted reproduction. Oncofertility.</p>
<p>Temeljni literatura in viri / Reading materials:</p>	
<ul style="list-style-type: none"> – Adam H. Balen (Editor): Infertility in practice. Informa Healthcare, 2nd ed., Taylor and Francis, 2009 – David K. Gardner, A. Weissman, CM Howels, Z. Shoham (Editors) Textbook of Assisted Reproductive Techniques: Laboratory and Clinical Perspectives, Informa Healthcare UK Ltd, 2012 – Gab Kovacs (editor). The subfertility handbook, Cambridge University Press, 2nd ed., 2011 – Paul Serhal and Caroline Overton (Editors): Good clinical practice in assisted reproduction, Cambridge University press, 2004 – BREZNIK, Barbara, KOVAČIČ, Borut, VLAISAVLJEVIČ, Veljko. The role and use of hyaluronan in reproductive medicine. V: POMIN, Vitor H. (ur.). <i>Hyaluronan : biological and medical implications</i>, (Biochemistry research trends). New York: Nova Science Publishers. cop. 2014, str. [113]-137, ilustr. [COBISS.SI-ID 5039167] – Review articles from scientific journals and monographies – VLAISAVLJEVIČ, Veljko, KNEZ, Jure, KOVAČIČ, Borut. Does the number of retrieved oocytes influence pregnancy rate after day 3 and day 5 embryo transfer?. V: WU, Bin (ur.). <i>Advances in embryo transfer</i>. Rijeka: InTech. cop. 2012, str. [39]-52, ilustr. http://www.intechopen.com/books/advances-in-embryo-transfer/does-the-number-of-retrieved-oocytes-influence-pregnancy-rate-after-day-3-and-day-5-embryo-transfer-. [COBISS.SI-ID 4270911] – VLAISAVLJEVIČ, Veljko, KNEZ, Jure, KOVAČIČ, Borut. Does embryo transfer technique and personal experience influence pregnancy rate?. V: BERHARDT, Leon V. (ur.). <i>Advances in medicine and biology</i>, (Advances in medicine and biology, ISSN 2157-5398, vol. 39). New York: Nova Science. cop. 2012, str. [237]-252. [COBISS.SI-ID 4324671] – VLAISAVLJEVIČ, Veljko, DOŠEN, Marko, KOVAČIČ, Borut. Embryo quality and pregnancy outcome in infertile patients with endometriosis. V: CHAUDHURY, Koel (ur.), CHAKRAVARTY, Baidyanath (ur.). <i>Endometriosis - basic concepts and current research trends</i>. Rijeka: InTech. 2012, str. [383]-398. http://www.intechopen.com/books/endometriosis-basic-concepts-and-current-research-trends. [COBISS.SI-ID 4271935] – KNEZ, Jure, KOVAČIČ, Borut, VLAISAVLJEVIČ, Veljko. Effectiveness of Slovenian health insurance reimbursement policy in twin's rate reduction in medically assisted reproduction. V: DUPONT, Maison (ur.), RENAUD, Jean-Pierre (ur.). <i>Siblings : social adjustments, interaction, and family dynamics</i>, (Children's issues, laws and programs). New York: Nova Science Publisher's. cop. 2012, str. 125-140, ilustr. [COBISS.SI-ID 4454719] – GIANAROLI Luca, FERRARETTI Anna Pia & KOVACIC Borut. Monitoring ART Safety and Biovigilance. V: KISSIN Dimitry M (ur.), ADAMSON David G (ur.), CHAMBERS Georgina (ur.), DE GEYTER Christian (ur.). <i>Assisted Reproductive Technology Surveillance</i>. ISBN 978-1-108-49858-6. Cambridge. Cambridge University Press. 2019, str. 56-68. – HREINSSON Julius, KOVAČIČ Borut. Regulation, Licensing, and Accreditation of the ART Laboratory in Europe. V: NAGY Zsolt Peter (ur.), VARGHESE Alex C. (ur.), AGARWAL Ashok (ur.). <i>Practical Manual of In Vitro Fertilization: Advanced Methods and Novel Devices</i> Zurich : Springer Nature. 2019, str: 1-11. 	
<p>Cilji in kompetence:</p>	<p>Objectives and competences:</p>
<p>Pridobitev splošnih kompetenc Študent mora biti sposoben razumeti in interpretirati: metode določitve hormonov za oceno</p>	<p>Development of general competences The fellow should be competent to understand and interpret: endocrinological measurement of</p>

<p>endokrinoloških sistemov, interpretirati radiografske tehnike uporabljene v diagnostičnih postopkih (HSG, CT, OBMP, itd.), primerno uporabiti in interpretirati genetske analize, kariotipizacijo. Pridobiti sposobnost in znanje uporabe ultrazvoka v reproduktivni medicini.</p> <p>Študent mora razumeti in biti sposoben diskutirati o nastanku ejakulata kot tudi o preiskavah semena. Vzroki azoospermije, oligozoospermije. Pomen in omejitve biopsije testisov in endokrinološke preiskave, kot so FSH v plazmi, kriobiologija semena, 'in vitro' in laboratorijski testi funkcije semenčic. Fiziologija in patofiziologija spolne funkcije.</p> <p><u>Pridobitev specifičnih kompetenc</u></p> <p>Znanje o oploditvi z biomedicinsko pomočjo, vključno s stimulacijo jajčnikov, obravnavo sindroma hiperstimulacije jajčnikov, PCOS, redukcije zarodkov.</p> <p>Študent mora biti sposoben primerne obravnave in zdravljenja neplodnega moškega.</p> <p>Znanje in kompetence glede endoskopske kirurgije v povezavi z diagnostiko in zdravljenjem ženske neplodnosti in kirurške pridobitve semenčic.</p>	<p>hormonal substances for evaluation of endocrine systems, to interpret radiographic techniques used in diagnostic procedure,(HSG,CT, MAR etc.), appropriately utilize and interpret chromosomal studies and karyotyping.</p> <p>Develop ultrasound skills used in reproductive medicine.</p> <p>The student should understand and be able to discuss the formation of ejaculate as well as examination of the seminal fluid. The causes of azoospermia and oligozoospermia, the value and limitation of testicular biopsy and endocrine assessment such as plasma FSH, cryobiology of semen, in vitro and laboratory tests of sperm function. The physiology and pathophysiology of sexual function.</p> <p><u>Development of specific competences</u></p> <p>Expertise in medically assisted reproduction, including ovarian stimulation, management of ovarian hyperstimulation syndrome, PCOS, embryo reduction.</p> <p>Fellow should be able to make appropriate investigation and treatment of infertile man.</p> <p>Knowledge and competence in evaluation of endoscopic surgery related to the diagnosis and treatment of female infertility and surgical sperm retrieval.</p>
<p>Predvideni študijski rezultati:</p>	<p>Intended learning outcomes:</p>
<p>Znanje in razumevanje: Poglobljeno znanje epidemiologije, vzrokov, preiskav ter obravnave ženske in moške neplodnosti</p>	<p>Knowledge and understanding: Comprehensive knowledge of epidemiology, causes, investigations and management of female and male infertility.</p>
<p>Prenosljive/ključne spretnosti in drugi atributi: Razumevanje tveganj in omejitev v postopku, diagnozi in ocena diagnostičnih postopkov, kontrola veljavnosti diagnostičnih testov in njihove spremenljivosti ter zanesljivosti kriterijev. Razumevanje nacionalnih in evropskih predpisov, ki se nanašajo na varnost in kvaliteto dela pri diagnostiki neplodnosti in terapiji.</p>	<p>Transferable/key competences and other abilities: Understand the risk and limitations of procedures, diagnosis and evaluation of diagnostic procedures, validity of diagnostic tests, variability and reliability criteria. National and European regulations related to safety and quality in infertility diagnostic and therapy.</p>
<p>Metode poučevanja in učenja:</p>	<p>Learning and teaching methods:</p>
<p>Predavanja Seminarji pod nadzorom in s sodelovanjem z mentorji Vaje (praktično delo) Samostojno delo</p>	<p>Lectures Seminars under mentors supervision and collaboration Tutorial (practical work) Individual work</p>

Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt)</p> <p>Naloge</p> <p>Ustno izpraševanje</p>	<p>30 %</p> <p>70 %</p>	<p>Method (written or oral exam, coursework, project):</p> <p>Coursework</p> <p>Oral examination</p>
Reference nosilca / Course coordinator's references:		
<p>KOVAČIČ, Borut, TABORIN, Marjan, VLAISAVLJEVIĆ, Veljko. Artificial blastocoel collapse of human blastocysts before vitrification and its effect on re-expansion after warming : a prospective observational study using time-lapse microscopy. Reproductive biomedicine online, ISSN 1472-6491, Feb. 2018, vol. 36, issue 2, str. 121-129. http://www.sciencedirect.com/science/article/pii/S1472648317306132, https://doi.org/10.1016/j.rbmo.2017.10.111, doi: 10.1016/j.rbmo.2017.10.111. [COBISS.SI-ID 6178111], [JCR, SNIP, WoS do 15. 9. 2019: št. citatov (TC): 8, čistih citatov (CI): 7, čistih citatov na avtorja (CIAu): 2.33, Scopus do 29. 8. 2019: št. citatov (TC): 8, čistih citatov (CI): 7, čistih citatov na avtorja (CIAu): 2.33] kategorija: 1A1 (Z, A', A1/2); uvrstitev: SCI, Scopus, MBP; tip dela je verificiral OSICM točke: 35.11, št. avtorjev: 3</p> <p>VLAISAVLJEVIĆ, Veljko, KOVAČIČ, Borut, KNEZ, Jure. Cumulative live birth rate after GnRH agonist trigger and elective cryopreservation of all embryos in high responders. Reproductive biomedicine online, ISSN 1472-6491, Jul. 2017, vol. 35, issue 1, str. 42-48, ilustr. http://www.sciencedirect.com/science/article/pii/S1472648317301517, doi: 10.1016/j.rbmo.2017.03.017. [COBISS.SI-ID 6052415], [JCR, SNIP, WoS do 14. 4. 2019: št. citatov (TC): 5, čistih citatov (CI): 5, čistih citatov na avtorja (CIAu): 1.67, Scopus do 29. 5. 2019: št. citatov (TC): 5, čistih citatov (CI): 5, čistih citatov na avtorja (CIAu): 1.67] kategorija: 1A1 (Z, A', A1/2); uvrstitev: SCI, Scopus, MBP; tip dela je verificiral OSICM točke: 34.99, št. avtorjev: 3</p> <p>KNEZ, Jure, VLAISAVLJEVIĆ, Veljko. The uterus. V: D'ANGELO, Arianna (ur.), AMSO, Nazar N. (ur.). Ultrasound in assisted reproduction and early pregnancy. 1st ed. Boca Raton: CRC Press. 2021, ilustr. https://www.taylorfrancis.com/books/e/9781351046237/chapters/10.1201/9781351046237-3. [COBISS.SI-ID 35664387] kategorija: 3D (Z); tip dela je verificiral OSICM točke: 5, št. avtorjev: 2</p>		