MED 3007: INTEGRATION OF BASIC SCIENCES TO CLINICAL SCIENCES III		
Course Date	November 30-December 30, 2020	
Exam Dates	Theoretical Exam: Dec 30, 2020	
Course Coordinator:	FATİH ÖZDENER	
Academic Unit	**Academic Staff**	**Theoretical hours**
Clinical Anatomy	Çağatay Barut, Prof.	3
Clinical Biochemistry	Özlem Unay, Assist. Prof.	2
Clinical Genetics	Timuçin Avşar, Assist. Prof.	2
Clinical Microbiology	Orhan Cem Aktepe, Prof. Gülden Çelik, Prof.	6
Clinical Pathology	Özlem Yapıcier, Prof.	10
Clinical Pharmacology	Fatih Özdener, Assist. Prof. Zülfiye Gül, Assist. Prof.	18
Clinical Histology	Dila Şener, Assist Prof.	1
Research Methodology	Cüneyd Parlayan, Assist Prof Melike Yavuz, Assist. Prof. Sebahat Dilek Torun, Assoc. Prof.	12
TOTAL		54

COURSE AIM:

The aim of this course is to provide the integration of basic sciences with the most common diseases encountered in General Surgery, Obstetrics and Gynecology and Neuroscience.

LEARNING OUTCOMES:

At the end of this lesson, the student will be able to:		
DEP.	**TOPIC**	**LEARNING OUTCOMES**
CLINICAL ANATOMY	Inguinal hernias (T-1)	1. Discuss the clinical anatomy of anterior abdominal wall and inguinal canal 2. Identify the main structures of the spermatic cord and layers of scrotum 3. Describe classification of inguinal hernias in relation to anterior abdominal wall and inguinal canal 4. Describe the characteristic and clinical presentations of inguinal hernias in relation to clinical anatomy 5. Recognize how inguinal hernia affect the morphology and functions of anterior abdominal wall and inguinal canal
	Hemorrhoids (T-1)	1. Discuss the clinical anatomy of rectum and anal canal 2. Identify the vessels and nerves of the rectum and anal canal 3. Define hemorrhoids in relation to anorectal vasculature 4. Describe the characteristic and clinical presentations hemorrhoids in relation to clinical anatomy 5. Recognize how hemorrhoids affect the morphology and functions of the rectum and anal canal
	Cervical cancer (T-1)	1. Discuss the clinical anatomy of vulva, vagina, uterus, ovaries, uterine tubes 2. Discuss the relationship of pelvic structures with each other 3. Identify the main vessels of vagina, uterus, ovaries, uterine tubes 4. Describe the anatomy of the lateral uterine support structures and related organs 5. Discuss the lymphatic drainage of uterus, vagina, uterine tubes and ovaries 6. Describe the anatomy related to a pelvic examination

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CLINICAL BIOCHEMISTRY	Alzheimer Disease: (T-1)	1. Describe the biochemical basis of Alzheimer disease 2. List the laboratory parameters used in diagnosis of Alzheimer disease 3. Define the use of laboratory parameters used for differential diagnosis of neurodegenerative diseases
	Meningitis (T-1)	1. Classify types of meningitis 2. List the laboratory parameters used in diagnosis of meningitis 3. Define the laboratory parameters used to assess the outcome of meningitis

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CLINICAL GENETİCS	Prenatal Diagnosis and Screening (T-2)	1. List prenatal diagnosis and screening methods. 2. Describe indications for prenatal applications 3. Define genetic counseling in prenatal stage.

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CLINICAL MICROBIOLOGY	HIV & AIDS (T-1)	1. List the virus responsible from HIV infection/AIDS 2. Explain the pathogenesis 3. List the main methods in the laboratory diagnosis 4. List the main advantages and disadvantages of the methods and interpretation of the results

		5. List the preventive measures
	Anti-Retroviral therapy (T-1)	1. List the main groups of antivirals used in HAART therapy 2. Describe the main mechanisms of antiretrovirals 3. Describe the HAART therapy 4. Describe resistance problem and detection methods 5. Describe the pre and post exposure therapy
	Infections in Immunocompromised patients (T-1)	1. List the main group of microorganisms responsible from infections in Immunocompromised patients 2. Explain the pathogenesis 3. List the main methods in the laboratory diagnosis 4. List the main advantages and disadvantages of the methods and interpretation of the results 5. List the preventive measures and the routine recommended antimicrobial treatment
	Pregnancy and Infections (T-1)	1. List the main group of microorganisms responsible from infections that are common in pregnancy 2. Explain the pathogenesis 3. List the main methods in the laboratory diagnosis 4. List the main advantages and disadvantages of the methods and interpretation of the results 5. List the preventive measures and the routine recommended antimicrobial treatment
	GUS Infect./ STD (T-1)	1. List the main group of microorganisms responsible from genitourinary and sexually transmitted infections 2. Explain the pathogenesis 3. List the main methods in the laboratory diagnosis 4. List the main advantages and disadvantages of the methods and interpretation of the results 5. List the preventive measures and the routine recommended antimicrobial treatment
	Intra-abdominal Infections & Sepsis (T-1)	1. List the main group of microorganisms responsible from intra abdominal infections and sepsis 2. Explain the pathogenesis 3. List the main methods in the laboratory diagnosis 4. List the main advantages and disadvantages of the methods and interpretation of the results 5. List the preventive measures and the routine recommended antimicrobial treatment

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CLINICAL PATHOLOGY	Appendicitis/Cholecystitis Colon cancer and related precursor lesions (T-2)	1. Describe the morphologic features of appendicitis and cholecystitis 2. Explain the pathologic basis of colon cancer additional with early and late stages of genetic changes 3. Compare the histomorphologic features of low and high grade dysplasia in adenomas of colon 4. Get through the subtypes of colon cancer 5. Describe the TNM staging of colon cancer
	Breast cancer/Prostate cancer Gallbladder/Pancreatic cancers (T-2)	1. Describe the morphologic features of breast cancer by means of subtypes of the tumor 2. Explain the immunohistochemical antibodies which are used for therapeutic approach in breast carcinoma 3. Describe the morphologic features of prostate cancer by means of Gleason grading 4. Explain the differential diagnoses of Gallbladder/Hepatic and Pancreatic carcinomas 5. Describe the grading and staging features of gallbladder and pancreatic carcinomas
	Abnormal uterine bleeding and related disorders Cervical/Ovarian cancers (T-2)	1. Explain the lesions of cervix and endometrium causing abnormal uterine bleeding 2. Compare endometrial hyperplasia with endometrial carcinoma in view of histomorphology 3. Describe precursor lesions of cervical cancer 4. Get through the subtypes of ovarian cancer 5. Describe the differential diagnosis of primary and secondary ovarian cancer
	Neurodegenerative diseases Demyelinated diseases (T-2)	1. Get through the types of neurodegenerative diseases 2. Explain the pathogenesis of each one of the neurodegenerative diseases

	WHO classification of brain tumors Most common benign and malignant tumors of CNS (T-2)	1. Describe the basic novelties of WHO classification system (2016) of brain tumors 2. Get through the most common benign and malignant tumors of central nervous system tumors (CNS) 3. Explain the pathogenesis and molecular changes of most commonly seen CNS tumors

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CLINICAL PHARMACOLOGY	General Anesthesia (T-2)	1. Describe the molecular action that most likely mediates the antianxiety effect of midazolam 2. Identify the ion channel action that most likely mediates the effect of propofol 3. Explain the main reason for the extensive use of IV anesthetic in general anesthesia 4. Explain the molecular mechanism of action of succinylcholine 5. Explain the meaning of MAC of an inhalational anesthetic 6. Identify the inhibition of ion current that most likely mediated the muscle relaxant effect of vecuronium 7. Identify the pairs of skeletal muscles that are to be paralyzed by vecuronium 8. Explain the reason for the administration of neostigmine after general anesthesia supplemented by vecuronium
	Breast cancer (T-2)	1. Identify the tumor cell receptor whose increase is most likely responsible for tumor metastases 2. Identify the primary reason for the use of raloxifene in breast cancer 3. Identify the disorder whose risk was increased because of raloxifene treatment 4. Explain the mechanism of action of trastuzumab 5. Identify the enzyme specifically inhibited by anastrozole 6. Identify a frequent adverse effect of anastrazole
	Lung cancer (T-2)	1. Explain why larger solid tumors are more difficult to eradicate by chemotherapy 2. Identify the pair of enzymes specifically inhibited by gemcitabine 3. Explain the mechanism of action of cisplatin 4. Identify the major adverse effects of cisplatin 5. Describe the mechanism of action of paclitaxel 6. Describe the main adverse effects of paclitaxel 7. Describe the mechanism of action of erlotinib 8. Describe the main adverse effects of erlotinib
	Prostate cancer (T-2)	1. Explain the reason leuprolide therapy in prostate cancer 2. Identify the site of action of leuprolide 3. Explain the molecular mechanism of action of leuprolide 4. Explain the molecular mechanism of action of flutamide 5. Identify a rare but life-threatening adverse effect of flutamide 6. Explain the reason for use of pamidronate in metastasized prostate cancer 7. Identify a rare but serious adverse effect of pamidronate treatment
	Hormonal contraception (T-2)	1. Describe emergency contraception 2. Describe the mechanism of contraceptive action of combination hormonal contraceptives 3. Describe the mechanism by which combination hormonal contraceptives act to show therapeutic effects in acne 4. Describe the characteristics of different types of synthetic progestins 5. Describe the different formulations of combined hormonal contraceptives 6. Describe different methods of starting combination hormone contraceptives 7. Explain extended cycle contraceptive formulations 8. Identify the disease whose risk is decreased with the use of combination hormonal contraceptives
	Perimenopause and osteoporosis (T-2)	1. List the estrogen and progestin compounds, routes of administration and different regimens used to treat menopausal hot flashes 2. Identify the disorder that can be prevented by adding a progestin to the estrogen in the menopausal replacement therapy 3. Describe the mechanism of action of bisphosphonates 4. Explain the appropriate duration of menopausal hormone therapy 5. Describe the adverse effects of menopausal HRT 6. Describe an appropriate drug preparation for managing vaginal atrophy associated with menopause

		7. Describe the alternatives to HRT to treat vasomotor symptoms of menopause
	Epilepsy (T-2)	1. Identify the brain ion channel that is the primary target of phenytoin 2. Select the inhibition of a neurophysiological action that can contribute to the therapeutic effect of carbamazepine 3. Describe the change in ionic currents that most likely mediates the anticonvulsant action of valproic acid 4. Identify the brain receptor that is most likely blocked by topiramate 5. Identify the most likely molecular target of levetiracetam 6. Identify the pairs of channels most likely blocked by lamotrigine 7. Identify the anticonvulsant drug that can block voltage-gated N-type Ca2+ channels on presynaptic terminals 8. Identify the drug that is commonly given to stop an ongoing epileptic seizure
	Migraine (T-2)	1. Identify the molecular action that mediates the analgesic effect of both aspirin ketoprofen in migraine 2. Identify a pair of receptors that are activated by ergotamine 3. Identify the blockade of receptors that mediate the antiemetic action of metoclopramide 4. Explain the most likely cause of calf pain in a patient receiving antimigraine therapy 5. Identify the receptors that is most likely mediate antimigraine effect of sumatriptan 6. Identify the neurotransmitter system most likely involved in valproate-induced migraine prevention
	Stroke (T-2)	1. Describe the action that most likely mediates the acute antihypertensive effect of labetalol 2. Identify the endogenous compound that represents the substrate of alteplase system 3. Identify a disorder that contraindicates the use of fibrinolytic drugs 4. Explain why clopidogrel is usually preferred to aspirin in a specific patient

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CLINICAL HISTOLOGY	Infertility and Assisted Reproductive Technologies (T-1)	1. Explain the etiology of male and female infertility 2. Describe the assisted reproductive techniques with relevant case

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RESEARCH METHODOLOGY	Sampling (T-1)	1. Define what sampling is 2. Define the terms *population, sample, element, sampling unit and subject* 3. Compare a population and a sample 4. Identify the purpose of sampling 5. Explain the role of sampling in the research process
	Sampling Methods (T-1)	1. Describe the common methods of sampling 2. Distinguish between probability and nonprobability sampling strategies 3. Compare the advantages and disadvantages of nonprobability and probability sampling strategies. 4. Explain the importance of inclusion and exclusion criteria. 5. Describe sampling process – steps 6. Explain the contribution of nonprobability and probability sampling strategies to strength of evidence provided by study findings.
	Research Ethics (T-1)	1. Identify ethical matters in research proposals 2. Identify and clearly describe a) any information needed from researchers and b) the reasons for that information 3. Define plagiarism and identify it on different examples 4. Prepare a project file for submitting to the ethics committee
	Measures of central tendency and dispersion, asymmetry (T-1)	1. Explain the essential understanding of data and information 2. Understand how data is dispersed and by which factors and parameters are effecting the data distribution 3. Lean how data input is plotted or laid out on graphical settings and what are reason of symmetricity and asymmetricity

	Statistical Inference (p value - Confidence Interval) (T-1)	1. Identify the concept of probabilistic result interpretation 2. Explain why p value is important to understand the value of the data and its integrity 3. Learn how p value is computed/found in different settings 4. Understand the accuracy and the confidence of the output of the result by calculating confidence interval. 5. Identify which factors may influence the confidence interval calculation and why they are important for data interpretation.
	Errors and Power (T-1)	1. Learn how errors occur and why they are important to consider. 2. Understand the different levels and significance of Errors in research and science 3. Understand the importance of power calculation 4. Learn power calculations for different clinical and experimental settings and how power concept should be constructed.
	Hypothesis Testing – Introduction (T-1)	1. Write a testable hypothesis 2. Explain the difference between the null and alternative hypotheses. 3. Define statistical significance and explain the meaning of a p-value. 4. Discriminate between type I and type II errors. 5. Define the importance of statistical power in conducting analyses. 6. Interpret the rejection region for one- and two-tailed tests and assess the significance of a statistical test.
	Hypothesis Testing - Choosing the right statistical test (T-1)	1. Name the various commonly used statistical tests 2. Describe the preconditions to select a statistical test 3. Apply the correct test for the problem at hand 4. İnterpret the conclusions of the test appropriately
	Bias and confoundings (T-1)	1. Define the concept and term of bias 2. List the types of bias 3. İdentify the potential sources of bias 4. Define the concept of confounding 5. İdentify the potential confounders 6. Describe three ways to control confounding in the design phase of a study 7. Compare crude and adjusted measures of association to identify whether confounding is present and characterize the direction and magnitude of confounding
	Chi-square test (T-2)	1. Define and understand the significance of Chi-square test 2. Learn underlying reasons why is used and where 3. Learn how to compute the test
	T-Test (T-1)	1. Understand the test and why it is used 2. Explain the test results and Hypothesis rejection or acceptance