

**MTEC 103: Medical Science Course 3**

<b>Patient Care and Clinical Skills: Students must be able to provide care that is compassionate, appropriate, and effective for treating health problems and promoting health</b>								
						Assessment Method	Learning Objective	Teaching Methods
	HBHD	NEU	END	RPM	MOS			
<b>PC1.</b> Obtain an accurate, age-appropriate medical history			<b>X</b>			<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Problem Set (formative)</li> <li>✓ Small Group Case (formative)</li> </ul>	<p><b>END:</b> Obtain an accurate, age- and gender-appropriate history for pituitary, adrenal, thyroid, and parathyroid disorders.</p>	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> </ul>
<b>PC2.</b> Demonstrate proper technique in performing both a complete and a symptom-focused examination, addressing issues of patient modesty and comfort					<b>X</b>	<ul style="list-style-type: none"> <li>✓ Problem Set (formative)</li> <li>✓ In-Class Response Questions (formative)</li> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> </ul>	<p><b>END:</b> Discuss technique and basic science foundation for hormonal stimulation and suppression testing, fine needle aspiration of thyroid nodules, and blood glucose monitoring in diabetic patients.</p> <p><b>MOS:</b> Describe the approach to the patient with multisystem autoimmune diseases.</p>	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> <li>✓ Readings</li> </ul>
<b>PC4.</b> Justify each diagnostic test ordered and proposed with regard to cost, effectiveness, risks			<b>X</b>		<b>X</b>	<ul style="list-style-type: none"> <li>✓ In-Class Response Questions (formative)</li> </ul>	<p><b>END:</b> Describe and interpret common laboratory and radiologic tests used in evaluating diseases of the Endocrine System, including hormone measurements, A1c, thyroid nuclear imaging.</p>	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> </ul>

### MTEC 103: Medical Science Course 3

and complications, and the patient's overall goals and values.						<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> </ul>	<p><b>MOS:</b> Explain the appropriate use of serologic testing in autoimmune disease. Describe the important psychosocial and economic factors in the management of patients with chronic diseases.</p>	<ul style="list-style-type: none"> <li>✓ Readings</li> </ul>
<b>PC5.</b> Apply clinical reasoning and critical thinking skills in developing a differential diagnosis	<b>X</b>		<b>X</b>	<b>X</b>	<b>X</b>	<ul style="list-style-type: none"> <li>✓ Quizzes (formative)</li> <li>✓ In-Class Response Questions (formative)</li> <li>✓ M-C Exams (summative)</li> <li>✓ Problem Set (formative)</li> </ul>	<p><b>HBHD:</b> Apply critical thinking and clinical reasoning skills to develop a differential diagnosis and basic management plan for common psychiatric symptoms and conditions. Recognize and develop a plan for intervention for patients suffering from substance abuse. Describe the clinical manifestations and treatment of common childhood behavioral conditions, including the following: Attachment disorder, Abuse, Autism, Oppositional defiant disorder, Attention deficit hyperactivity disorder, Compulsive disorder, Anxiety disorder. Describe the clinical manifestations and treatment of common adult behavioral conditions, including the following: Anxiety disorders, Post-traumatic stress disorder, Mood disorders, Psychotic disorders, Personality disorders, Somatoform disorders, Substance abuse, Eating disorders and starvation.</p> <p><b>END:</b> Apply critical thinking and clinical reasoning skills to develop a differential diagnosis and management plan for common endocrine symptoms and conditions.</p> <p><b>RPM:</b> Apply clinical reasoning skills in developing a differential diagnosis for common disorders of the reproductive systems, including the breast, and for disorders of pregnancy and lactation.</p> <p><b>MOS:</b> Generate a broad differential diagnosis based on pathological mechanisms and disease prevalence and identify the most likely diagnosis on that list.</p>	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> <li>✓ Computer-based Module</li> </ul>

### MTEC 103: Medical Science Course 3

<p><b>PC6.</b> Apply the principles of pharmacology, therapeutics, and therapeutic decision-making to develop a management plan</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<ul style="list-style-type: none"> <li>✓ Quizzes (formative)</li> <li>✓ Small Group (formative)</li> </ul>	<p><b>HBHD:</b> Discuss the mechanism of action, common adverse effects, effectiveness and risks of psychiatric drugs, including the following: anxiolytic drugs, antidepressant drugs, antipsychotic drugs, drugs of abuse, and stimulants.</p> <p><b>NEU:</b> Apply the following pharmacological concepts in the therapeutic decision making process: the pharmacological mechanisms of action as well as the pharmacological reasons for common side effects of opiates, non-opioid analgesics, hypnotics, local anesthetics, general anesthetics, and anti-parkinsonian medications.</p> <p><b>END:</b> Discuss the indications, mechanism of action, and common adverse effects of medications used to treat endocrine disease and diabetes including: a. hormonal replacement for hypothyroidism, adrenal insufficiency, and hypocalcemia b. anti-thyroid drugs c. drugs to treat hyperprolactinemia d. diabetes drugs.</p> <p><b>RPM:</b> Discuss the mechanism of action, adverse side effects and effectiveness of drugs used to treat common disorders of the reproductive systems, pregnancy and lactation.</p> <p><b>MOS:</b> Analyze the mechanisms of action, clinical use, and potential toxicities of medications used in the treatment of systemic autoimmune diseases.</p>	<ul style="list-style-type: none"> <li>✓ Computer-based Modules</li> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> <li>✓ Reading</li> </ul>
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**MTEC 103: Medical Science Course 3**

<p><b>PC7.</b> Identify and incorporate into the care of patient's appropriate prevention strategies for common conditions.</p>			<p><b>X</b></p>			<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Problem Set (formative)</li> <li>✓ In-Class Questions (formative)</li> </ul>	<p><b>END:</b> Recognize preventive strategies for diabetes and obesity.</p>	
<p><b>Medical Knowledge:</b> Students must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g., epidemiological and social-behavioral) sciences and the application of this knowledge in patient care, specifically:</p>								
						<p><b>Assessment Method</b></p>	<p><b>Learning Objective</b></p>	<p><b>Teaching Methods</b></p>
	<p>HBHD</p>	<p>NEU</p>	<p>END</p>	<p>RPM</p>	<p>MOS</p>			

### MTEC 103: Medical Science Course 3

<p><b>MK1.</b> Describe the normal structure and function of the human body and of each of its major organ systems across the life span.</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> <li>✓ Problem Set (formative)</li> </ul>	<p><b>HBHD:</b> Describe key events and the basic timeframe of normal psychological development.</p> <p><b>NEU:</b> Describe the normal structure and function of the central nervous system including:</p> <ul style="list-style-type: none"> <li>a. spinal cord</li> <li>b. brain stem</li> <li>c. cortex</li> <li>d. basal ganalia</li> <li>e. cerebellum.</li> </ul> <p>Describe the normal structure and function of the peripheral nervous system including:</p> <ul style="list-style-type: none"> <li>a. vascular supply</li> <li>b. cranial nerves</li> <li>c. cerebrospiral fluid.</li> </ul> <p>Describe the normal structure and function of the sensory systems to include:</p> <ul style="list-style-type: none"> <li>a. visual system</li> <li>b. auditory-vestibular systems.</li> </ul> <p>Describe the normal structure of function of the motor systems. Describe the normal structure and function of the autonomic nervous systems.</p> <p><b>END:</b> Describe the normal development, structure, and function of the major organs of the Endocrine System (pituitary, adrenal, thyroid, parathyroid, endocrine pancreas), the hormones they produce, and their regulation. Describe normal glucose homeostasis and regulation at the whole-body level and the cellular level.</p> <p><b>RPM:</b> Describe the normal and abnormal processes of the female reproductive system throughout the life cycle including a discussion of the epidemiology, etiology, risk factors, presentations, and basic treatment plans when appropriate.</p>	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> <li>✓ Computer-based Modules</li> <li>✓ Lecture</li> </ul>
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### MTEC 103: Medical Science Course 3

<p><b>MK2.</b> Explain various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, behavioral, and traumatic) of major diseases and conditions and the ways in which they operate on the body (pathogenesis).</p>	X		X	X	X	<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> <li>✓ Problem Set (formative)</li> <li>✓ Small Group Case (formative)</li> </ul>	<p><b>HBHD:</b> Identify psychiatric diseases with known genetic etiologies. Describe the current understanding of the pathophysiology of common childhood behavioral conditions including the following: Attachment disorder, Abuse, Autism, Oppositional defiant disorder, Attention deficit hyperactivity disorder, Compulsive disorder, Anxiety disorder. Describe the current understanding of the pathophysiology of common adult behavioral conditions including the following: Anxiety disorders, Post-traumatic stress disorder, Mood disorders, Psychotic disorders, Personality disorders, Somatoform disorders, Substance abuse, Eating disorders and starvation.</p> <p><b>END:</b> Explain the largely autoimmune and neoplastic nature of diseases of the pituitary, adrenal, thyroid, and parathyroid glands.</p> <p><b>MOS:</b> Describe the etiology, pathogenesis, and pathology of:</p> <ol style="list-style-type: none"> <li>a. systemic lupus erythematosus</li> <li>b. systemic vasculitis</li> <li>c. JIA</li> <li>d. systemic sclerosis</li> </ol> <p><b>RPM:</b> Explain the etiology, pathogenesis, pathology, presentations, and basic management of common non-neoplastic and neoplastic diseases of the female reproductive system.</p>	<ul style="list-style-type: none"> <li>✓ Computer-based Modules</li> <li>✓ Readings</li> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> </ul>
<p><b>MK3.</b> Describe how the altered structure and function (pathology and pathophysiology) of</p>		X	X	X		<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> </ul>	<p><b>NEU:</b> Describe the pathology and pathophysiology underlying the clinical manifestations of the following disorders:</p> <ol style="list-style-type: none"> <li>a. infectious</li> <li>b. demyelinating</li> </ol>	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> </ul>

**MTEC 103: Medical Science Course 3**

<p>the body and its major organ systems are manifest through major diseases and conditions.</p>						<ul style="list-style-type: none"> <li>✓ Self-Directed Learning Cases (formative)</li> <li>✓ Problem Set (formative)</li> </ul>	<ul style="list-style-type: none"> <li>c. traumatic/mechanical</li> <li>d. neoplastic</li> <li>e. vascular</li> <li>f. congenital</li> <li>g. degerative</li> <li>h. sleep</li> <li>i. neuropathy (diabetic, carpal tunnel).</li> </ul> <p>Describe the pathology and pathophysiology underlying the clinical manifestations of diseases in the following areas:</p> <ul style="list-style-type: none"> <li>a. visual</li> <li>b. auditory-vestibular</li> <li>c. taste and olfaction</li> <li>d. nerve roots</li> <li>e. plexuses</li> <li>f. peripheral nerves</li> <li>g. motor neurons and neuromuscular junction.</li> </ul> <p>Describe the pathology and pathophysiology underlying the clinical manifestations of the following conditions:</p> <ul style="list-style-type: none"> <li>a. seizures/epilepsy,</li> <li>b. headaches (including migraine),</li> <li>c. Dizziness or Vertigo,</li> <li>d. Adverse Medication Reaction,</li> <li>e. Agitated Patient (acute),</li> <li>f. Altered Mental status,</li> <li>g. Back Pain or Sciatica,</li> <li>h. Fall,</li> <li>i. Otitis Media,</li> <li>j. Red Eye,</li> <li>k. Stroke/Transient Ischemic Attack,</li> <li>l. Syncope or Pre-Syncope,</li> <li>m. Trauma patient</li> </ul> <p><b>END:</b> Explain the pathology and pathophysiology of</p>	
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**MTEC 103: Medical Science Course 3**

							<p>common hormone excess/deficiency states, and of major neoplasms of the endocrine organs, including:</p> <ul style="list-style-type: none"> <li>a. Hypopituitarism,</li> <li>b. Hyperprolactinemia, prolactinomas, and pituitary adenomas,</li> <li>c. Cushing's disease,</li> <li>d. Adrenal insufficiency,</li> <li>e. Hypothyroidism and hyperthyroidism,</li> <li>f. Thyroid nodules and cancer,</li> <li>g. Hyperparathyroidism,</li> <li>h. Type 1 and Type 2 diabetes,</li> <li>i. Pancreatic neuroendocrine tumors.</li> </ul> <p><b>RPM:</b> Compare and contrast the mechanisms of action and use of drugs for treatment of disorders of the reproductive system and management of normal reproductive function. Discuss the concepts of preconception, prenatal and perinatal counseling, screening, and diagnostic testing. Describe the approach to diagnosis, counseling, and treatment of patients with genetic disorders.</p>	
<p><b>MK4.</b> Identify the proximate and ultimate factors that contribute to the development of disease and illness, and that contribute to health status within and across populations regionally, nationally, and globally.</p>	X	X	X	X	X	<p>✓ Clin Epi Quizzes (formative)</p>	<p><b>All Blocks:</b> Identify the role clinical epidemiology plays in studying the determinants and effects of clinical decisions. Understand how epidemiology analyzes the distribution and causes of disease in populations.</p>	<ul style="list-style-type: none"> <li>✓ Clin Epi TBL</li> <li>✓ Clin Epi Small Group</li> <li>✓ Clin Epi Computer-Based Modules</li> </ul>



### MTEC 103: Medical Science Course 3

<p><b>MK5.</b> Demonstrate knowledge of the common medical conditions within each clinical discipline, including its pathophysiology and fundamentals of treatment.</p>			<p><b>X</b></p>	<p><b>X</b></p>		<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> <li>✓ Problem Set (formative)</li> <li>✓ Small Group Case (formative)</li> </ul>	<p><b>END:</b> Identify the nutritional and environmental factors that contribute to the development of type 2 diabetes and obesity. Discuss the clinical features and basic treatment of major hormone excess/deficiency states and common neoplasms of the endocrine organs, including:</p> <ul style="list-style-type: none"> <li>a. Hypopituitarism</li> <li>b. Hyperprolactinemia, prolactinomas, and pituitary adenomas</li> <li>c. Cushing's disease</li> <li>d. Adrenal Insufficiency</li> <li>e. Hypothyroidism and hyperthyroidism</li> <li>f. Thyroid nodules and cancer</li> <li>g. Hyperparathyroidism</li> <li>h. Type 1 and Type 2 diabetes</li> <li>i. Pancreatic neuroendocrine tumors</li> </ul> <p>Recognize the hallmark symptoms and signs of patients with hormone excess or deficiency states.</p> <p><b>RPM:</b> Describe the etiology, pathophysiology and management of the common disorders of the reproductive systems and breast, and disorders associated with pregnancy, puberty and lactation. Discuss the clinical presentations of common disorders of the reproductive systems, breast, pregnancy and lactation. Describe the standard diagnostic approach for each and the treatment options that are available.</p>	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> <li>✓ Computer-based Modules</li> </ul>
<p><b>MK6.</b> Demonstrate knowledge of the basic principles of human behavior throughout the life cycle, including human sexuality and</p>				<p><b>X</b></p>		<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> </ul>	<p><b>RPM:</b> Discuss the phases of the sexual response cycle in males and females, and the etiologies of various human sexual dysfunctions.</p>	<ul style="list-style-type: none"> <li>✓ Computer-based Modules</li> </ul>

### MTEC 103: Medical Science Course 3

development during infancy, childhood, adolescence, adulthood, and end of life.								
<b>MK7.</b> Recognize the medical consequences of common societal problems.			<b>X</b>			<ul style="list-style-type: none"> <li>✓ M-C Exams (summative)</li> <li>✓ Quizzes (formative)</li> </ul>	<b>END:</b> Recognize and discuss social conditions, behaviors, and genetic/hormonal factors that predispose patients to diabetes and obesity.	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> </ul>
<b>Interpersonal and Communication Skills:</b> Students must demonstrate interpersonal and communication skills that facilitate effective interactions with patients and their families and other health professionals.								
						<b>Assessment Method</b>	<b>Learning Objective</b>	<b>Teaching Method</b>
	<b>HBHD</b>	<b>NEU</b>	<b>END</b>	<b>RPM</b>	<b>MOS</b>			
<b>IC2.</b> Communicate effectively in oral format with colleagues, and other health care professionals.	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>		<b>All Blocks:</b> Communicate in a clear, accurate, and respectful manner with small group facilitators and peers.	<ul style="list-style-type: none"> <li>✓ Small Group</li> <li>✓ Self-Directed Learning</li> <li>✓ Simulation Labs</li> </ul>

**MTEC 103: Medical Science Course 3**

<b>Professionalism:</b> Students must demonstrate a commitment to professional service, adherence to ethical principles, sensitivity to patients, and maintain personal health and well-being.								
						Assessment Method	Learning Objective	Teaching Method
	HBHD	NEU	END	RPM	MOS			
<b>PR1.</b> Identify and consistently demonstrate ethical principles and behaviors in the care of patients	X	X	X	X	X	<ul style="list-style-type: none"> <li>✓ Peer Evaluation (formative)</li> <li>✓ Mid-Course Feedback (formative)</li> </ul>	<b>All Blocks:</b> Treat everyone including patients, families, team members, faculty, peers, and staff with unconditional positive regard during every interaction and recognize the importance of patient centered delivery of healthcare. Demonstrate ethical behaviors in the preclinical setting that are required in the clinical setting, including but not limited to respect, honesty, and humility.	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> <li>✓ Simulation</li> <li>✓ Labs</li> </ul>
<b>PR2.</b> Demonstrate professional behavior consistent with expectations for the medical profession including punctuality and attire	X	X	X	X	X	<ul style="list-style-type: none"> <li>✓ Peer Evaluation (formative)</li> <li>✓ Mid-Course Feedback (formative)</li> </ul>	<b>All Blocks:</b> Arrive on time each day and actively prepare for and participate in patient care and teaching activities. Ask for and incorporate feedback regularly to improve performance. Demonstrate honest behavior during exams and post-exam reviews. Fulfill professional obligations when absent by seeking an administrative excuse only when necessary and in advance, communicating absence to appropriate individuals, and making up missed work.	<ul style="list-style-type: none"> <li>✓ Large Group Lecture</li> <li>✓ Small Group</li> <li>✓ Simulation</li> <li>✓ Labs</li> </ul>

### MTEC 103: Medical Science Course 3

<b>Life Long Learning:</b> Students must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their practice of medicine.								
						Assessment Method	Learning Objective	Teaching Method
	HBHD	NEU	END	RPM	MOS			
<b>LL1.</b> Demonstrate skills in retrieving, critically assessing, and integrating social and biomedical information into clinical decision-making.	X	X	X	X	X	✓ Self-Directed Learning Cases (formative)	<b>All Blocks:</b> Develop the ability to refine clinical questions. Identify, analyze, and synthesize information relevant to individual learning needs. Assess the credibility of information sources. Share information with peers, professors, and small group facilitators. Integrate knowledge into clinical decision-making.	✓ Self-Directed Learning ✓ Small Group
<b>LL2.</b> Reflect upon clinical, service and educational experiences, evaluate positive and negative aspects, and make changes to improve future experiences	X	X	X	X	X	✓ Self-Directed Learning Cases (formative) ✓ Peer Evaluation (formative) ✓ Mid-Course Feedback (formative)	<b>All Blocks:</b> Identify gaps in knowledge, clinical skills, and professional behaviors. Apply feedback on information-seeking skills. Apply feedback delivered in peer evaluations and mid-course evaluations to improve professional and educational performance.	✓ Self-Directed Learning ✓ Small Group
<b>LL3.</b> Demonstrate personal accountability by actively seeking feedback, admitting errors openly, and honestly modifying behavior.	X	X	X	X	X	✓ Self-Directed Learning Cases (formative) ✓ Peer Evaluation (formative)	<b>All Blocks:</b> Demonstrate ability to disclose and be accountable for mistakes. Demonstrate openness to constructive feedback.	✓ Self-Directed Learning ✓ Small Group

**MTEC 103: Medical Science Course 3**

						✓ Mid-Course Feedback (formative)			
<p><b>Social &amp; Health Systems Science:</b> Students must demonstrate an awareness of and responsiveness to the larger system of health care and demonstrate the skills needed to improve the health of specific clinical populations</p>									
						<b>Assessment Methods</b>	<b>Learning Objectives</b>		<b>Teaching Method</b>
	HBHD	NEU	END	RPM	MOS				
<p><b>SHS7.</b> Demonstrate collaborative teamwork skills and the ability to work effectively with other members of the health care team.</p>	X	X	X	X	X	<ul style="list-style-type: none"> <li>✓ Self-Directed Learning Cases (formative)</li> <li>✓ Mid-Course Feedback (formative)</li> <li>✓ Peer Evaluation (formative)</li> </ul>	<p><b>All Blocks:</b> Work collaboratively as a member of a team to learn basic science and organ-based content and to solve clinical problems.</p> <p><b>HBHD:</b> Provide constructive feedback to peers and professors in small group settings and evaluations.</p> <p><b>MOS:</b> Summarize the importance of a multidisciplinary team approach when evaluating and managing patients with autoimmune diseases</p>	<ul style="list-style-type: none"> <li>✓ Lab</li> <li>✓ Simulation</li> <li>✓ Self-Directed Learning</li> <li>✓ Small Group</li> </ul>	
<p><b>SHS10.</b> Demonstrate an ability to integrate group level clinical data (registries) into the care of patient and populations.</p>	X	X	X	X	X	<ul style="list-style-type: none"> <li>✓ Clin Epi Quizzes (summative)</li> <li>✓ Self-Directed Learning Cases (formative)</li> </ul>	<p><b>All Blocks:</b> Describe the various tools of clinical epidemiology utilized in making predictions about individual patients.</p> <p><b>NEU:</b> Identify the purpose of and who has access to the opioid registry.</p>	<ul style="list-style-type: none"> <li>✓ Clin Epi TBL</li> <li>✓ Clin Epi Small Group</li> <li>✓ Clin Epi Computer-Based Modules</li> </ul>	