



K H A R R A Z I A N  
I N S T I T U T E

## **Kharrazian Institute – Course Syllabus**

### **Essentials of Functional Medicine**

**Course Title:** Essentials of Functional Medicine

**General Schedule:** Livestream March 30<sup>th</sup> from 8:00 am – 6:30 pm (8 hours of lectures)

**Instructor:** Datis Kharrazian, PhD, DHSc, DC, MS, MMSc, FACN

**Location:** Online livestream and on-demand video replays after the livestream

#### **Course Description**

This course will review the clinical principles of functional medicine and compare and contrast the functional medicine model to other healthcare models. The role of personalized and lifestyle medicine will be emphasized with strategies that emphasize diet, nutrition, sleep, exercise, and nutraceuticals. Essential principles involving specific systems of the body that include the brain, gastrointestinal system, immune system, bioenergetics, endocrine system, and biotransformation systems will be presented.

#### **Learning Objectives:**

1. Understand when the functional medicine model is appropriate in healthcare management.
2. Understand the strengths and weaknesses of the functional medicine model.
3. Understand how functional medicine differs from other healthcare models.
4. Understand the principles of individualized medicine.
5. Understand how lifestyle medicine can impact health and function.
6. Understand how various diets may impact systems biology.
7. Understand how nutraceuticals can be used to impact various physiological pathways.

8. Review how the medical history, physical exam, and laboratory tests can be used to evaluate biological function.
9. Understand how to incorporate principles of lifestyle medicine, diet, and nutraceuticals to improve physiological function and health.
10. Understand how to monitor biological function and health after personalized interventional strategies.

### **Essentials of Functional Medicine Course Schedule (8-hours of lectures)**

#### **8:00 - 9:00 am – Functional Medicine Model of Healthcare (1 hour)**

- The principles of physiology and evidence-based medicine in functional medicine
- Physiological dysfunction versus disease
- Comparison of functional medicine models to preventive medicine, longevity medicine, anti-aging medicine, green medicine, naturopathic medicine, nutritional deficiency models, pharmacology, and herbology
- Upstream versus downstream medicine
- Identifying appropriate candidates for functional medicine interventions

In this presentation, the fundamental principles of functional medicine will be presented. The differences in supporting physiological dysfunction versus disease will be discussed. Additionally, the concepts of upstream versus downstream clinical approaches will be emphasized. Lastly, the strengths and weaknesses of a functional medicine model and which types of clinical scenarios are appropriate for a functional medicine model will be presented.

#### **9:00 – 9:15 am: Break**

#### **9:15 -10:15 am – Clinical Principles of Functional Medicine (1 hour)**

- How to evaluate physiological dysfunction in combination with standard methods of diagnosis
- How to identify triggering events that impact function and health
- How to identify and incorporate lifestyle factors that impact function and health
- How to identify nutrient deficiencies
- How to use laboratory tests to evaluate physiological function and health
- How to incorporate individualized dietary and nutraceutical strategies to improve function and health

In this presentation, the clinical principles of functional medicine will be discussed. The use of medical history, physical exam, and laboratory tests to identify physiological dysfunction will be emphasized. Clinical strategies to identify potential triggering events, lifestyle

factors, and nutrient deficiencies that may impact health will be discussed. The presentation will conclude with how to develop and incorporate personalized strategies to support health.

### **10:15 – 10:30 am: Break**

### **10:30 - 11:30 am – Brain Essentials in Functional Medicine (1 hour)**

- Brain dysfunction versus brain disease
- Principles of neuroplasticity and neuroconnectivity
- Neurochemical functions
- Neuroinflammation
- Blood-brain barrier
- Cerebral blood flow
- Neurodegenerative pathophysiology

This presentation will present the essentials of clinical neurology associated with improving brain function. Emphases will be placed on neurochemical dysfunction, neuroinflammation, blood-brain barrier permeability, impaired cerebral blood flow, and neurodegenerative pathophysiology. Strategies to improve brain health and optimize neuroplasticity will be discussed.

### **11:30 – 12:30 pm: Lunch**

### **12:30 - 1:30 pm – Immune System Essentials in Functional Medicine (1 hour)**

- Layers of the immune system (barriers, complement protein, innate immunity, and adaptive immunity)
- Immune reactivity versus chronic inflammation
- Pathogen immunity
- Allergy and sensitivity

This presentation will start with a fundamental review of immunology and how various immune cells function. The role of immune reactivity versus chronic inflammation will be discussed. The impact of innate and adaptive immune dysfunction related to pathogen resiliency, allergy, and sensitivity will be addressed.

### **1:30 – 1:45 pm: Break**

### **1:45 - 2:45 pm – Bioenergetic Essentials in Functional Medicine (1 hour)**

- The role of mitochondria and ATP in health and disease
- The role of blood glucose and ketones in bioenergetics
- The role of oxygen in bioenergetics
- The role of inflammation, oxidative stress, and antioxidant systems in bioenergetics

This presentation will discuss the role of mitochondria energy production in health and disease. The impact of dyglycemia, anemia, hypoxia, inflammation, and oxidative stress on bioenergetic function will be discussed. Clinical strategies to optimize energy systems and mitochondria function will be presented.

### **2:45 - 3:00 pm: Break**

### **3:00 - 4:00 pm: Endocrine System Essentials in Functional Medicine (1 hour)**

- Metabolic functions of the endocrine system
- Reproductive and regenerative functions of the endocrine system
- Catabolic versus anabolic activity
- Stress physiology and pathophysiology

This presentation will present the role of endocrine function in metabolism, fertility, and regenerative functions. The impact of hormones on catabolic and anabolic physiology will be discussed. The impact of hormone imbalances on health and disease will be presented in addition to how stress pathophysiology impacts general health.

### **4:00 - 4:15 pm: Break**

### **4:15 - 5:15 pm: Biotransformation Essentials in Functional Medicine (1 hour)**

- Phase 1 oxidation/reduction
- Phase 2 conjugation
- Elimination pathways

This presentation will review hepatic and microbiome phase 1 oxidation/reduction pathways and phase 2 conjugation pathways. The impact of impaired biotransformation on health and disease will be discussed. Clinical strategies to optimize these systems with diet, nutrition, and lifestyle will be emphasized.

### **5:15 pm - 5:30 pm: Break**

### **5:30 - 6:15 pm: Summary of Essential Concepts of Functional Medicine (45 minutes)**

This presentation will review the key principles presented throughout this course. The role that these principles play in working with patients suffering from poor health will be discussed. Understanding essential concepts of functional medicine in improving patient outcomes will be addressed.

### **6:15- 6:30 pm - Questions and Answers (15 minutes)**

In this section of the course, questions will be answered from the lectures presented throughout the course.