



Medical Education Nutrition Competency Framework

This document includes a list of ten domains encompassing 71 nutrition competencies and their corresponding hour equivalents. The competencies were informed by the [2024 JAMA Consensus Statement](#) as well as from additional competencies identified by experts at the Department of Health and Human Services. Competency hour equivalents were derived using Carnegie Unit definitions scaled to competency complexity, expressed as direct hours rather than credits to facilitate institutional curriculum planning.

This list is intended to help your institution design a curriculum for undergraduate medical school nutrition education that meets a 40-hour equivalent minimum. After conducting a baseline assessment of your current nutrition curriculum and identifying gaps in covered topics, we recommend schools choose from the competencies below. Highlighted in blue are one example of foundational competencies recommended by HHS, which total 40 hours combined.

Domain 1: Foundational Nutrition Knowledge 21 Competencies 48.0 hours		
Competency #	Competency Description	Hours
1	Nutritional content of foods, macronutrients and micronutrients	3.0
2	Pathological states affecting nutrient absorption	3.0
3	Identifies nutrient deficiencies, recommends foods/supplements	3.0
4	Difference between food allergies and intolerance including gluten	1.5
5	Energy and nutrient requirements across lifespan	2.5
6	Drug-nutrient interactions	2.5
7	Nutritional differences: minimally processed vs highly processed foods	2.0
8	Interprets nutrition labels and menu labeling	2.0
9	Clinically assisted nutrition (enteral/parenteral) – recommended at the GME level for appropriate specialties only	3.0
10	Functions of essential nutrients	2.5
11	Principles of healthy balanced diet per national guidelines	2.0
12	Evidence-based guidance on healthy beverage consumption	1.5
13	Mitochondrial metabolism and energy regulation: understand nutrient-driven ATP synthesis and how overnutrition leads to insulin resistance	4.0
14	Structural components from food: recognize how dietary amino acids, essential fatty acids, and cholesterol build proteins, membranes, and hormones	2.5
15	Micronutrient cofactors in enzymatic function: master how vitamins and minerals drive reactions and how deficiencies undermine function	4.0
16	Hormonal regulation through food composition: understand how meal composition affects GLP-1, CCK, PYY, leptin, and insulin signaling	3.0
17	Epigenetic modulation through nutrition: comprehend how methyl donors, phytochemicals, and feeding rhythms influence gene expression	3.0

18	Microbiome-immune crosstalk: understand fiber fermentation producing butyrate for gut integrity and how ultra-processed diets cause dysbiosis	2.5
19	Cognitive and behavioral nutrition: apply mindful eating practices that enhance hormonal signaling and reduce reward-driven eating	1.5
20	Food bioavailability and synergies: knowledge of preparation methods enhancing absorption	1.0
21	Chronobiology and circadian nutrition: understand how meal timing affects nutrient absorption, hormonal rhythms, and metabolic efficiency	2.0
Domain 2: Nutrition Assessment and Diagnosis 8 Competencies 27.5 hours		
Competency #	Competency Description	Hours
22	Assesses nutritional status by integrating dietary history, clinical measurements (height, weight, BMI, skeletal muscle mass, visceral fat), and laboratory findings	4.0
23	Comprehensive nutrition-focused physical examination	4.0
24	Interprets exam data and biomarkers for malnutrition risk	3.0
25	Personalized metabolic biomarker interpretation: using fasting insulin levels, oral glucose tolerance testing (OGGT), HOMA-IR, TG:HDL ratio, advanced lipid panels, omega-3 index, and vitamin D to guide interventions	4.0
26	Continuous glucose monitoring (CGM) interpretation: analyze CGM data patterns to identify glycemic variability and guide dietary modifications and different use cases for specific populations, including diabetic patients	4.0
27	Early warning sign recognition: interpret nutrition-related symptoms (fatigue, bloating, anxiety) and signs (brittle nails, hair thinning)	3.0
28	Network biology disease assessment: evaluate organ symptoms as downstream manifestations of upstream cellular dysfunction	4.0
29	Personal biomarker practicum: complete personal lab panels and build self-reflective nutrition plans with iterative testing	1.5
Domain 3: Food and Nutrition-Related Communication Skills 9 Competencies 29.5 hours		
Competency #	Competency Description	Hours
30	Integrates evidence-based nutrition information into patient care	2.5
31	Uses behavior change models to counsel patients	4.0
32	Guides patients on lifelong dietary patterns for chronic disease	3.0
33	Brief counseling for visceral adiposity/metabolic syndrome	4.0
34	Motivational interviewing for nutrition change: apply structured interviewing techniques to enhance autonomy and sustainable behavior change	4.0
35	Food journaling guidance: teach patients to maintain detailed food journals for pattern identification and accountability	3.0
36	Mindfulness-based eating interventions: implement eating awareness training to improve hormonal signaling	3.0
37	Patient empowerment and dietary autonomy: foster long-term self-efficacy through education, biomarker monitoring, and collaborative goal-setting	3.0
38	Interoceptive awareness training: help patients develop awareness of internal hunger/satiety cues to regulate intake naturally	2.0

Domain 4: Collaborative, Interprofessional Referral and Patient Management 5 Competencies 12.0 hours		
Competency #	Competency Description	Hours
39	Works with other health professionals for multidisciplinary nutrition care	2.5
40	Makes appropriate referrals to support patient health goals	2.0
41	Health coach and functional nutritionist collaboration: effectively co-manage patients with non-physician experts	2.5
42	Digital health technology integration: understand and recommend evidence-based wearables and platforms supporting nutrition outcomes	3.0
43	Functional medicine clinic rotations: shadow practitioners implementing food-first interventions and metabolic health approaches	2.0
Domain 5: Public Health Nutrition 6 Competencies 15.5 hours		
Competency #	Competency Description	Hours
44	Screens for food/nutrition needs and patients' ability to obtain sufficient nutrition, makes appropriate referrals	2.5
45	Agricultural systems and health outcomes: understand how soil health, monoculture, and pesticides determine food biochemical content	2.5
46	Food systems-disease linkage: recognize evidence pathways between agricultural practices and chronic disease	4.0
47	Policy advocacy for physicians: understand state and federal nutrition programs and identify opportunities for evidence-based reform	2.5
48	Regenerative agriculture as clinical intervention: understand practices restoring soil microbiota and yielding nutrient-dense food	2.0
49	Dietary Guidelines analysis: critically evaluate and translate the 2025 Dietary Guidelines into clinical practice	2.0
Domain 6: Experiential Hands-on Learning (Culinary Medicine) 5 Competencies 16.0 hours		
Competency #	Competency Description	Hours
50	Creates culinary nutrition SMART goals for personal use and patient care	3.0
51	Nutrient-preserving cooking techniques: master methods enhancing bioavailability through soaking, sprouting, fermenting	4.0
52	Personalized meal planning from clinical data: develop meal plans tailored to patient clinical history, biomarkers, and circumstances	4.0
53	Anti-inflammatory meal preparation: prepare minimally processed, whole-food meals emphasizing nutrient density	3.0
54	Teaching kitchen learning laboratory: participate in multidisciplinary nutrition learning through hands-on cooking	2.0
Domain 7: Medical Interventions in Combination with Lifestyle Practices 6 Competencies 17.5 hours		
Competency #	Competency Description	Hours
55	GLP-1 agonists counseling with diet and lifestyle guidance	2.0
56	Responsible use of AI for nutrition advice	2.0

57	Disease-specific nutritional reversal protocols: implement evidence-based dietary strategies as first-line interventions for metabolic syndrome, prediabetes, type 2 diabetes, metabolic dysfunction-associated fatty liver disease, and polycystic ovarian syndrome; identify patients benefiting from low carbohydrate approaches through metabolic biomarkers, insulin resistance indicators, and response patterns.	3.0
58	Nutraceutical and anti-inflammatory nutrition interventions: apply evidence-based nutraceuticals (omega-3 fatty acids, plant sterols, fiber, polyphenols) and anti-inflammatory dietary patterns as initial interventions to manage dyslipidemia, reduce systemic inflammation, and treat inflammatory conditions.	1.0
59	Medication-nutrition synergy: guide patients combining medications, surgery, CGM, wearables with lifestyle practices	4.0
60	Prioritize food-based medicine as the primary approach to chronic disease prevention and treatment, integrating both clinical interventions and patient self-management strategies	3.0
61	Longitudinal biomarker monitoring: track patient progress through iterative laboratory testing and protocol refinement	2.5
Domain 8: Personal Food & Lifestyle Behaviors for Health Care Professionals 4 Competencies 6.0 hours		
Competency #	Competency Description	Hours
62	Identifies factors affecting personal health and nutrition status	1.5
63	Modeling patient-centered behaviors: recognize physician self-care behaviors strongly predict patient counseling patterns	2.5
64	Personal metabolic optimization: apply systems biology principles to own health data to experience clinical protocols	2.0
Domain 9: Food Systems and Environmental Impacts 6 Competencies 16.5 hours		
Competency #	Competency Description	Hours
65	Recognizes and promotes healthy food environments in healthcare delivery settings	2.5
66	Nutrient density and soil health: understand relationship between soil microbiota diversity and mineral/nutrient content of foods	2.5
67	Regenerative agriculture immersion: participate in on-site learning at farms including soil sampling, composting, crop rotation	4.0
68	Toxicology in the food supply: understand the impacts of potential toxicants in all parts of the food supply chain	4.0
69	Food quality determinants: evaluate nutrient density, chemical residue contamination, and additives as clinical impact elements	2.0
70	Environmental contaminant case studies: review clinical cases linking food-based exposures to patient outcomes	1.5
Domain 10: Billing, Coding, and Reimbursement for Food and Nutrition Services 1 Competency 3.0 hours		
Competency #	Competency Description	Hours
71	Billing for nutrition services, culinary medicine consultations with RDNs	3.0