

SUBJECT OUTLINE

Subject Name: Subject Code:

Foundations of Human Nutrition NMDF121

SECTION 1 – GENERAL INFORMATION

Award/s:	Total Course Cred	lit Points:	Leve	l:
	Bachelor of Health Science (Naturopathy)	128	Core	1st Year
	Bachelor of Health Science (Myotherapy)	96	Core	2 nd Year
	Bachelor of Health Science (Nutritional and Dietetic Medicine	96	Core	1st Year
	Bachelor of Complementary Medicine	48	Elective	3 rd Year
	Diploma of Health Science	32	Core	1st Year
Duration:	1 Semester			

Subject is: Core or Elective as noted **Subject Credit Points:**

Student Workload:				
No. timetabled h	·			Total hours per week: 10
Delivery Mode*:				
☐ On camp	ous 🗵 O	nline / Digital	\square Blended	☐ Intensive
Weekly Session^ Format/s - 2 sessions per week:				
⊠ eLearning modules:		Lectures: Interactive ac	daptive online learning	modules
		Tutorials: can include a activities, learning jourr	•	derated discussion forum and reb-based resources
*All modes are supported by the online learning management system which will include subject documents such as handouts, readings and assessment guides.				
^A 'session' is made up of 3 hours of timetabled / online study time per week unless otherwise specified. Each subject has a set number of sessions as outlined above.				
Study Pattern:	⊠ Full Time	⊠ Part Time		
Pre-requisites:	BIOB111, BIOH1	l1		
Co-requisites:	SOCQ121			

SECTION 2 – ACADEMIC DETAILS

Subject Rationale

This subject establishes an essential bridge between health science and nutritional medicine. Students are introduced to the fundamentals of human nutritional science, including the biochemical and physiological functions

Australian College of Natural Medicine Pty Ltd trading as Endeavour College of Natural Health, Endeavour Wellness Clinic



of individual macro- and micro- nutrients, the importance of nutrients in normal cell function, energy balance and metabolism and the consequences of deficiencies or excesses on human health. This subject explores the role of scientific research and its application in nutritional medicine practice. Foundations of Human Nutrition is essential to the further study of nutritional medicine where students will develop a deeper understanding of the role of diet and nutrition in restoring, maintaining and promoting optimum health and wellbeing.

Learning Outcomes

- 1. Outline the macro- and micro- nutrients and their role in health and disease.
- Identify and discuss the function and implications of states of excess or deficiency for macro- and micronutrients.
- 3. Define the appropriate nutritional intake requirements for macro- and micro- nutrients in the maintenance and management of health.
- 4. Interpret basic dietary guidelines relevant to the restoration, maintenance and promotion of individual health and wellbeing.
- 5. Use current research-based evidence in relation to discussing the health benefits and potential toxicities of macro- and micro- nutrients.
- 6. Demonstrate accurate use of dietary analysis software to quantitatively analyse nutrient intake data and inform interpretation of individual nutrient status.

Assessment Tasks				
Туре	Learning Outcomes Assessed	Session Content Delivered	Due	Weighting
Online Quiz (30 minutes)	1-4	2-7	Week 5	20%
Nutrient Report (1500 words)	1-6	1-22	Week 12	30%
Final Exam (1.5 hours) Final Exam Period Period				50%
All written assessments and online quizzes are due at 11:55 p.m. Sunday and submitted through the LMS				

Prescribed Readings:

- 1. Paxton, F. (2015). Foundations of naturopathic nutrition: A comprehensive guide to essential nutrients and nutritional bioactives. Allen & Unwin.
- 2. Whitney, E., Rolfes, S. R., Crowe, T., Cameron-Smith, D., & Walsh, A. (2019). *Understanding nutrition:*Australia and New Zealand edition (5th ed.). Cengage Learning. [ebook available]



Current research articles as outlined per session within the subject study guide reading list.

Recommended Readings:

- 1. Food Standards Australia New Zealand. (2019, January). *Australian Food Composition Database*. https://www.foodstandards.gov.au/science/monitoringnutrients/afcd/Pages/default.aspx
- 2. Gropper, S. S., & Smith, J. L. (2017). *Advanced nutrition and human metabolism* (7th ed.). Cengage Learning. [ebook available]
- 3. Hendler, S. S., & Rorvik, D. M. (2008). PDR for nutritional supplements (2nd ed.). Thomson Reuters.
- 4. Nelson, D. L., & Cox, M. M. (2016). Lehninger principles of biochemistry (7th ed.). W.H. Freeman.
- 5. Osiecki, H. (2014). The nutrient bible (9th ed.). Bio Concepts Publishing.
- 6. Ross, A. C., Caballero, B., Cousins, R. J., Tucker, K. L., & Ziegler, T. R. (Eds.). (2014). *Modern nutrition in health and disease* (11th ed.). Wolters Kluwer.
- 7. Schlenker, E. D., & Roth, S. L. (2015). *Williams' essentials of nutrition & diet therapy* (11th ed.). Mosby Elsevier. [ebook available]
- 8. Wahlqvist, M. L. (Ed.). (2011). Food and nutrition: Food and health systems in Australia and New Zealand (3rd ed.). Allen & Unwin.

Subj	ect Content	
Week	Lectures	Tutorials / Practicals / Workshops
1.	 Session 1 Introduction to Dietary Requirements Introduction to nutrition science Nutrient Reference Values (NRV), Australian Dietary Guidelines (ADG), therapeutic application Global and national governing bodies and regulatory agencies 	Asynchronous digital learning activities are developed to allow the students to explore relevant concepts; expand on ideas and revise previous knowledge; have peer and lecturer interaction and feedback. Discussion and exploration of concepts introduced: Definitions Natural medicine principles NRV and ADG Governing bodies
	Session 2	Knowledge application:
	Macronutrient: Carbohydrates - Part 1	■ High risk populations
	Nutrient basics	Health Management
		Research/video
	nutrients, foods, and conditions that inhibit/enhance bioavailability	
	Nutrient functions	

(IHE PRV12070, National CRICOS #00231G, RTO #31489)

NMDF121 Foundations of Human Nutrition

Australian College of Natural Medicine Pty Ltd trading as Endeavour College of Natural Health, Endeavour Wellness Clinic



	Nutrient deficiencies & excesses; signs & symptoms; NRV requirements	
	Glycaemic index and glycaemic load	
2.	Session 3	Knowledge application:
	Macronutrients: Carbohydrates - Part 2 (Dietary	High risk populations
	Fibre)	Health Management
	Types, dietary sources, biochemical structures and physical structures, fermentation, metabolic effects & physiological functions, NRV, deficiency indications, toxicity	Research/video
	Macronutrient: Water	
	Sources and quality, functions, NRV	
	Session 4	Knowledge application:
	Macronutrients: Lipids - Part 1: Triglycerides	High risk populations
	Introduction: overview of lipids	Health Management
	Triglycerides: nutrient basics	Research/video
	biochemical structure/physical properties	
	food sources	
	Odigestion and absorption	
	nutrients, foods, and conditions that inhibit/enhance bioavailability	
	Nutrient functions	
	Nutrient deficiencies & excesses; signs & symptoms; NRV requirements	
	Introduction to essential fatty acids (EFAs)	
3.	Session 5	Knowledge application:
	Macronutrients: Lipids - Part 2 Essential Fatty	High risk populations
	Acids (EFAs) continued, Phospholipids,	Health Management
	Sterols and Cholesterol	Research/video
	Physiological functions, mechanism of action, NRV, deficiency indications, toxicity	
	Lipoproteins and cholesterol transport	
	Session 6	Knowledge application:
	Macronutrients: Protein - Part 1	High risk populations
	Nutrient basics	Health Management
	biochemical structure/physical properties	Case study
	food sources	Research/video
	Odigestion and absorption	
	nutrients, foods, and conditions that inhibit/enhance bioavailability	

Australian College of Natural Medicine Pty Ltd trading as Endeavour College of Natural Health, Endeavour Wellness Clinic (IHE PRV12070, National CRICOS #00231G, RTO #31489) NMDF121 Foundations of Human Nutrition

Page 4 of 10 Version: 26.0



		V
	Nutrient functions	
	Nutrient deficiencies & excesses; signs & symptoms; NRV requirements	
4.	Session 7	Knowledge application:
	Macronutrients: Protein - Part 2	High risk populations
	Protein turnover and nitrogen balance	Health Management
	Deamination and transamination	Case study
	Purine-pyrimidine synthesis and protein synthesis review	Research/video
	Acid-alkaline diet theory	
	Session 8	Knowledge application:
	Nutritional Assessment	Foodzone tutorial
	A, B, C, D, E pillars of nutritional assessment	Validity of nutritional assessments
	Anthropometric assessment methods	Video
	Biochemical assessment methods	
	○ Clinical assessment methods	
	Dietary assessment methods	
	Ecological assessment methods	
	Population based assessment methods	
	Balancing Energy Needs	
5.	Session 9	Knowledge application:
	Macronutrients: Amino Acids - Part 1	High risk populations
	Amino acids overview	Health Management
	⊙ Essentiality; side chains; ketogenic,	Case study
	glucogenic; nitrogen-containing non-protein compounds	Research/video
	Branched chain amino acids: valine, leucine and isoleucine	
	Other hydrocarbon side chains: glycine, alanine	
	Sources, biochemical structures,	
	physiological functions, deficiency indications and toxicity	
	Session 10	Knowledge application:
	Macronutrients: Amino Acids - Part 2	High risk populations
	Aromatic side chains: tryptophan, tyrosine,	Health Management
	phenylalanine;	Case study
	 Sources, biochemical structures, physiological functions, deficiency indications and toxicity 	Research/video
6.	Session 11	Knowledge application:



		V
	Macronutrients: Amino Acids - Part 3	High risk populations
	Acidic side chain groups: glutamate, glutamine,	Health Management
	aspartate, asparagine	Case study
	Sulphur-containing amino acids: methionine, cysteine, taurine and glutathione	Research/video
	 Sources, biochemical structures, physiological functions, deficiency indications and toxicity 	
	Session 12	Knowledge application:
	Macronutrients: Amino Acids - Part 4	High risk populations
	Hydroxyl side chains: threonine, serine	Health Management
	Basic side chains: arginine, lysine, histidine	Case study
	Imino side chain: proline	Research/video
	 Sources, biochemical structures, physiological functions, deficiency indications and toxicity 	
7.	Session 13	Knowledge application:
	Vitamins: Water Soluble Vitamins - Part 1	High risk populations
	Introduction to water soluble vitamins	Health Management
	Vitamin C: Nutrient basics	Case study
		Research/video
	nutrients, foods, and conditions that inhibit/enhance bioavailability	
	Nutrient functions and metabolism	
	Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing	
	Session 14	Knowledge application:
	Vitamins: Water Soluble Vitamins - Part 2	High risk populations
	■ Introduction to B Group vitamins	Health Management
	Vitamin B1, vitamin B2, and vitamin B3: Nutrient	Case study
	basics	Research/video
	Odigestion and absorption	
	nutrients, foods, and conditions that inhibit/enhance bioavailability	
	Nutrient functions and metabolism	
	Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing	



	NON-TEACHING WEEK (note that make-up classe Online students – The non-teaching week falls bet	
8.	Session 15 Vitamins: Water Soluble Vitamins - Part 3	Knowledge application: High risk populations
	 Vitamin B5, biotin, choline, and inositol: Nutrient basics Biochemical structure food sources 	Health ManagementCase studyResearch/video
	digestion and absorptionnutrients, foods, and conditions that inhibit/enhance bioavailability	
	 Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing 	
	Session 16	Knowledge application:
	Vitamins: Water Soluble Vitamins - Part 4 ■ Vitamin B6, vitamin B12, and folate: Nutrient basics	High risk populationsHealth ManagementCase study
	 biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability 	Research/video
	 Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing 	
9.	Session 17	Knowledge application:
	Vitamins: Fat Soluble Vitamins - Part 1 Introduction to fat soluble vitamins	High risk populationsHealth Management
	 Vitamin A and vitamin E: Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability 	Case study Research/video
	 Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing 	
	Session 18 Vitamins: Fat Soluble Vitamins - Part 2	Knowledge application: High risk populations



 Vitamin D and vitamin K: Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing Session 19 Minerals: Macrominerals - Part 1 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing
 ∫ food sources ∫ digestion and absorption ⊘ nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing 10. Session 19 Minerals: Macrominerals - Part 1 ⊘ Introduction to minerals ⊘ Structural macrominerals: calcium, magnesium, and phosphorus ⊘ Nutrient basics ⊘ biochemical structure ⊘ food sources ⊘ digestion and absorption ⊘ nutrients, foods, and conditions that inhibit/enhance bioavailability ⊘ Nutrient functions and metabolism ⊘ Nutrient deficiencies & excesses; signs &
 digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing Session 19 Minerals: Macrominerals - Part 1 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 Inutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing Session 19 Minerals: Macrominerals - Part 1 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing 10. Session 19 Minerals: Macrominerals - Part 1 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient deficiencies & excesses; signs & Nutrient deficiencies & excesses; signs &
 Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing 10. Session 19 Minerals: Macrominerals - Part 1 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
symptoms; NRV and nutrient status testing 10. Session 19 Minerals: Macrominerals - Part 1 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient deficiencies & excesses; signs &
Minerals: Macrominerals - Part 1 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient deficiencies & excesses; signs &
 Introduction to minerals Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 Structural macrominerals: calcium, magnesium, and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
and phosphorus Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
Nutrient deficiencies & excesses; signs &
symptoms; NRV and nutrient status testing
Session 20 Knowledge application:
Minerals: Macro-minerals - Part 2 Minerals: Macro-minerals - Part 2 Minerals: Macro-minerals - Part 2
Electrolyte macro-minerals: potassium, sodium, Health Management
and chloride Case study
 Nutrient basics Research/video
biochemical structure
⊙ food sources⊙ digestion and absorption
 digestion and absorption nutrients, foods, and conditions that
 digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability
 digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism
 digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs &
 digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing
 digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing Session 21 Knowledge application:



		V .
	 food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing Session 22 Minerals: Microminerals - Part 2 lodine, selenium, and manganese: Nutrient basics biochemical structure food sources digestion and absorption nutrients, foods, and conditions that inhibit/enhance bioavailability Nutrient functions and metabolism Nutrient deficiencies & excesses; signs & 	 Research/video Knowledge application: High risk populations Health Management Case study Research/video
	-	
	_	
	Session 22	Knowledge application:
	Minerals: Microminerals - Part 2	High risk populations
	_	
		·
		Nesearch video
	⊙ nutrients, foods, and conditions that	
	Nutrient functions and metabolism	
	Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing	
12.	Session 23	Knowledge application:
	Minerals: Microminerals - Part 3	High risk populations
	Fluoride, chromium, and molybdenum: Nutrient	Health Management
	basics	Case study
	biochemical structure	Research/video
	food sources direction and absorption	
	digestion and absorption nutrients foods and conditions that	
	nutrients, foods, and conditions that inhibit/enhance bioavailability	
	Nutrient functions and metabolism	
	 Nutrient deficiencies & excesses; signs & symptoms; NRV and nutrient status testing 	
	Session 24	Knowledge application:
	Nutritional Toxicology: Toxic Metals and Other	High risk populations
	Toxic Substances	Health Management
	Cadmium, Lead, Mercury, Nickel, Aluminium, Arsenic	Case study Research/video
	Structures, absorption, physiological impacts, toxicity signs, nutritional management	Trescaron, video
	Health management of toxic metals and other toxic substances through nutritional medicine	
13.	Session 25	Knowledge application:
L		I.

Australian College of Natural Medicine Pty Ltd trading as Endeavour College of Natural Health, Endeavour Wellness Clinic (IHE PRV12070, National CRICOS #00231G, RTO #31489)

NMDF121 Foundations of Human Nutrition



	Other nutrients and non-nutrient health-	High risk populations	
	promoting compounds	Health Management	
	Other trace minerals		
	Bioflavonoids and polyphenols	Case study	
	, ,,	Research/video	
	Nutrient supplementation		
	Session 26	Knowledge application:	
	Dietary Theories	High risk populations	
	Popular diet theories	Health Management	
	Cultural, ethical, religious, therapeutic, scientific and fad diets	Case study: focus on vegan and vegetarian diets	
		Research/video	
	Benefits and risks		
14.	Non-Teaching Week/Practical Examination Weel	K1	
	Note that make-up classes may be scheduled in this week		
15.	Non-Teaching Week/Practical Examination Week 2		
10.			
	Note that make-up classes may be scheduled in this week		
16.	Final Examination Week 1		
	Students are required to sit examinations using the Respondus Lockdown Browser software per the		
	Examination Policy – Higher Education. Refer to the	ELMS for exam opening and closing times.	
17.	Final Examination Week 2		
	Students are required to sit examinations using the Respondus Lockdown Browser software per the		
	Examination Policy – Higher Education. Refer to the LMS for exam opening and closing times.		

Page 10 of 10 Version: 26.0