

SUBJECT OUTLINE



Subject Name:

Nutritional Physiology Research

Subject Code:

NMDA321

SECTION 1 - GENERAL INFORMATION

Award/s:	Total Course Credit Points:	Level:
Bachelor of Health Science (Naturopathy)	128	4 th Year
Bachelor of Health Science (Nutritional and Dietetic Medicine)	96	3 rd Year
Duration:	1 Semester	
Subject Coordinator:	Dr Vandana Gulati (Melbourne campus)	
Subject is:	Subject Credit Points:	2
Core		

Student Workload:

No. timetabled hours per week:	No. personal study hours per week:	Total hours per week:
3	2	5

Delivery Mode:

Face to Face (On campus)	1 x 2 hour lecture	1 x 1 hour tutorial
e-Learning (Online)	Narrated PowerPoint presentations Tutorials: Asynchronous tutor moderated discussion forum and activities Student handouts, web-based resources	
Intensive Delivery (Summer School)	Contact hours are delivered over 5 weeks with 2 x 4 hour days delivered per week Content: Combination lecture and tutorial activities Assessment: Research Question & Rationale - Week 2; PowerPoint & Oral Presentation - (Slides) Week 3 and (Oral Presentations) Weeks 4-5; Literature Review - Week 6 Full Time Part Time	
Pre-requisites:	NMDC221, BIOS222	
Co-requisites:	SOCH311	

SECTION 2 – ACADEMIC DETAILS

Subject Rationale

This subject builds upon all prior nutrition subjects and expands the student's knowledge of emerging and advanced nutritional physiology concepts and understandings. The subject draws on the student's existing knowledge of physiology, nutritional biochemistry, and pathophysiology and expands on this knowledge both through exploration of current nutrition science and mechanistic research. This subject provides students with the opportunity to critically analyse, synthesise and consolidate knowledge and apply current best-evidence incorporating complementary medicine understandings and philosophies in the clinical management and prevention of disease. Students will review the evidence of dietary approaches, foods, nutraceutical and phytochemical research associated with improvement of physiological mechanisms that underlie abnormal functioning of the human body and disease processes.

Learning Outcomes

1. Develop an answerable clinical question relating to a specific disease or associated biological process.
2. Conduct a literature review bearing on the clinical question.
3. Demonstrate knowledge of the current and emerging nutritional physiology research.
4. Critically evaluate, analyse, synthesise and consolidate current nutritional science research methodology and findings.
5. Apply evidence-based practice (EBP) principles, complementary medicine understandings and philosophy, critical thinking, creativity and judgement to determine nutritional interventions for acute and chronic disease.

Assessment Tasks

Type	Learning Outcomes Assessed	Session Content Delivered	Due	Weighting
Research Question and Rationale (500 words)	1-2	1-2	Week 5	20%
PowerPoint & Oral Presentation slides to accompany	1-5	1-4	Slides due Week 6; Oral Presentations Weeks 7-10	20%
Literature Review evidence based practice (3000 words)	1-5	1-13	Week 13	60%

All written assessments and online quizzes are due at 11:55 p.m. and submitted through the LMS

Prescribed Readings:

1. This subject requires students to search the literature using research databases to discover and evaluate the best recent articles on their topic of investigation. Guidance on conducting searches will be provided in class. Other research papers for in-class analysis and discussion will be sourced by the Subject Coordinator as they are published, and then posted on the Learning Management System for the students. Consequently the reading materials will change from semester to semester as new articles become available.

Recommended Readings:

1. The link for the full list of relevant eJournals is available on LibGuides Nutrition Subject Guides – a mix of subscription and open access.

Subject Content

Week	Lectures	Tutorials
1.	Introduction (Subject Outline / Subject Aims / Assessment / Teaching Resources) Nutritional Physiology Research Introduction <ul style="list-style-type: none"> • Evidence informed practice • Combining traditional knowledge and evidence-based practice • Hierarchy of evidence versus clinical relevance and application 	Students are provided with a number of research articles of different study designs <ul style="list-style-type: none"> • Students are introduced to the strengths and limitations by design Facilitated group discussion <ul style="list-style-type: none"> • How can we apply available evidence in practice?

2.	<ul style="list-style-type: none"> • Critiquing research articles • Establishing a research question 	Students are provided with a literature review and a case study <ul style="list-style-type: none"> • Critique and analyse the quality of each Class discussion <ul style="list-style-type: none"> • Translation of evidence into practice
3.	<ul style="list-style-type: none"> • Academic writing • Methodology • Literature review • Case report 	<ul style="list-style-type: none"> • Student practice developing a search strategy and undertake database searches
4.	Important Concepts and Complex Nuances in Nutrition Research <ul style="list-style-type: none"> • Difficulties in conducting clinical trials • Types of clinical studies • Sample size and participation criteria 	Class debate <ul style="list-style-type: none"> • Students develop an argument for circumstances where different prescribing and dosage strategies may nor may not be warranted
5.	Nutrition and the Environment <ul style="list-style-type: none"> • Environmental chemicals, sources, health effects and minimisation strategies • Food toxicants in the daily diet 	Working in groups <ul style="list-style-type: none"> • Students to identify the number of potential daily exposures to environmental chemicals and food toxicants and identify avoidance strategies Class discussion <ul style="list-style-type: none"> • Students present individual findings
6.	Investigating the Mechanisms and Relationships to Disease Processes and Exploration of Current Clinical Research <ul style="list-style-type: none"> • Acid base balance • Nutritional implications 	Research activity <ul style="list-style-type: none"> • Students undertake a literature search for a specific condition investigating the role of nutrition in regulating acid base balance and improved health outcomes
7.	Biochemical and Mechanistic Basis of Cell Salt Mineral Therapy <ul style="list-style-type: none"> • Cations and anions • Sodium, phosphate, potassium, calcium, chloride, magnesium, iron & silica 	Case study analysis
NON-TEACHING WEEK (note that make-up classes may be scheduled in this week) Semester 1 - This aligns with the week after Easter so it may fall between Weeks 6 to 8 Semester 2 - The non-teaching week falls between Weeks 7 and 8		
8.	An Exploration of Current Clinical Research <ul style="list-style-type: none"> • Clinical application of nutraceuticals and phytochemicals in disease prevention and management 	Case study analysis
9.	An Exploration of Current Clinical Research <ul style="list-style-type: none"> • Gut-brain axis • Human microbiome 	Activity <ul style="list-style-type: none"> • Students are provided with a number of research articles • Critique and analyse the relevance of each Class discussion <ul style="list-style-type: none"> • Translation of evidence into practice

10.	Investigating the Mechanisms and Relationships to Disease Processes and Current Clinical Research Regarding Nutritional Modulation <ul style="list-style-type: none"> • Immune dysfunction • Inflammation cytokine production • Th1 and Th2 balance • Allergy • Autoimmune 	Activity <ul style="list-style-type: none"> • Students are provided with a number of research articles • Critique and analyse the relevance of each Class discussion <ul style="list-style-type: none"> • Translation of evidence into practice
11.	Investigating the Mechanisms and Relationships to Disease Processes <ul style="list-style-type: none"> • Genetic polymorphisms • Nutrigenomics • Pyroluria 	Research tutorial <ul style="list-style-type: none"> • Students provided with a list of gene classifications which have been documented to impact a variety of disease conditions • These will be divided amongst the students who will search the literature and collate evidence on disease implications and possible treatment interventions Group discussion <ul style="list-style-type: none"> • Each group presents findings
12.	Investigating the Mechanisms and Relationships to Disease Processes and Current Clinical Research Regarding Nutritional Modulation <ul style="list-style-type: none"> • Methylation • One-carbon metabolism • Foetal programming 	Activity <ul style="list-style-type: none"> • Students are provided with a case study and a series of questions relating to the case • In small groups, answer the questions via literature searching where necessary Class discussion
13.	Investigating the Mechanisms and Relationships to Disease Processes and Current Clinical Research Regarding Nutritional Modulation <ul style="list-style-type: none"> • Aging theories • Cognitive function • Neuroplasticity • Telomeres 	Activity <ul style="list-style-type: none"> • Students are provided with a number of research articles • Critique and analyse the relevance of each Class discussion <ul style="list-style-type: none"> • Translation of evidence into practice
14.	Non-Teaching Week/Practical Examination Week 1 Note that make-up classes may be scheduled in this week	
15.	Non-Teaching Week/Practical Examination Week 2 Note that make-up classes may be scheduled in this week	
16.	Final Examination Week 1 There is no final exam for this subject	
17.	Final Examination Week 2 There is no final exam for this subject	