



## Subject Outline

<b>Subject Name:</b>	Dietary Planning in Illness and Disease
<b>Subject Code:</b>	NMDD312
<b>Award(s):</b>	Bachelor of Health Science (Nutritional Medicine) Bachelor of Health Science (Naturopathy)
<b>Core:</b>	Core – 2 credit points
<b>Pre requisites:</b>	NMDC221
<b>Student Workload:</b>	39 hours face to face 36 hours self-directed study
<b>Delivery Mode:</b>	<b>Full Time and Part Time</b> <b>Face to face</b> <ul style="list-style-type: none"><li>• 3 hours lecture and tutorial</li></ul> <b>Intensive Delivery</b> <ul style="list-style-type: none"><li>• Summer School - contact hours are delivered over 5 weeks with 2 x 4 hour days delivered per week.</li><li>• Assessments: Biochemical and Functional Report, due week 3; Case Analysis due Sunday week 6. All assessments are to be uploaded by 11.55pm Sunday AEST at the end of the week due.</li></ul>
<b>Subject Coordinator:</b>	Cathryn Costa (Adelaide Campus)
<b>Subject Rationale:</b>	<p>This subject draws from knowledge gained from previous Bioscience and Nutritional Medicine subjects and focuses on dietary considerations for the management of a range of common health conditions.</p> <p>Through an evaluation of relevant health assessments and tests, an understanding of the pathophysiology of common health conditions, and knowledge of the dietary and nutritional influences on health and disease, students formulate appropriate dietary interventions to manage those conditions.</p> <p>Students will utilise the knowledge and skills gained in this subject to augment other therapeutic measures and apply them in clinic practicums.</p>

### Learning Outcomes:

1.	Apply therapeutic dietary plans in illness and disease ( <i>gastrointestinal, cardiovascular, respiratory, immune system, metabolic, endocrine, neurological and musculoskeletal disease</i> ).
2.	Interpret biochemical and functional analysis in the development of therapeutic dietary planning
3.	Construct dietary plans using data obtained from dietary analysis and anthropometric investigation.

4.	Incorporate scientific research in therapeutic dietary planning.
5.	Evaluate the success of dietary intervention in illness and disease.

**Content:**

Week	Lecture	Tutorial
1.	<p>Introduction (Subject outline / Subject Rationale / Subject Assessment / Student Resources).</p> <p>Dietary therapy in Gastrointestinal disease:</p> <ul style="list-style-type: none"> <li>• Gastritis, gastric ulcers, Celiac disease, Lactose and fructose intolerance, inflammatory bowel disease and irritable bowel syndrome.</li> <li>• Biochemical and functional assessment of gastrointestinal disease.</li> </ul>	<p>Activities are developed to allow the students to explore relevant concepts, expand on ideas and have peer and lecture/tutor interaction. Activities also allow for formative assessment and feedback</p> <p><b>Introduction to subject content and assessment.</b></p> <p><b>Gastrointestinal case study discussion:</b></p> <ul style="list-style-type: none"> <li>• In small tutorial groups, students construct a dietary plan for the provided case. Each group will be provided with a specific GIT condition and data analysis from a food analysis program in which they should: <ul style="list-style-type: none"> <li>○ Formulate treatment goals and actions</li> <li>○ Identify specific nutrients and thus foods related to each action.</li> <li>○ Identify appropriate biochemical and functional assessment methods.</li> <li>○ Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> <li>• Students will present their findings to the class for feedback and critical discussion.</li> </ul>
2.	<p>Dietary therapy in Gastrointestinal disease:</p> <ul style="list-style-type: none"> <li>• Dietary therapy post bowel resection and in colon cancer.</li> <li>• Biochemical markers of colon cancer.</li> <li>• Dietary interventions for specific liver, gall bladder and pancreatic disease.</li> <li>• Biochemical and functional markers of liver dysfunction.</li> </ul>	<p><b>Worksheet:</b></p> <ul style="list-style-type: none"> <li>• Students assess the GIT functional and biochemical tests provided and identify any deficiencies or excesses in the functioning of these tests.</li> <li>• Students discuss their findings within small tutorial groups and suggest dietary interventions to address these dysfunctions.</li> <li>• Students will present their findings to the class for feedback and critical discussion.</li> </ul> <p><b>Liver, gall bladder and pancreatic disease case study discussion:</b></p> <ul style="list-style-type: none"> <li>• Students break into small tutorial groups and construct a dietary plan for the provided case. Each group will be provided with a specific condition and data analysis from a food analysis program in which they should: <ul style="list-style-type: none"> <li>○ Formulate treatment goals and actions</li> <li>○ Identify specific nutrients and thus foods related to each action.</li> <li>○ Identify appropriate biochemical and functional assessment methods.</li> <li>○ Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> </ul>



		<ul style="list-style-type: none"> <li>Students present their findings to the class for feedback and critical discussion.</li> </ul>
3.	<p>Dietary therapy in food allergy and intolerance:</p> <ul style="list-style-type: none"> <li>Immunological basis of food allergy and intolerance.</li> <li>Assessment of food allergy, intolerance and reaction.</li> <li>The application of food elimination diets</li> <li>IgG, IgA, IgE assessments, relevance, efficacy and application</li> <li>Dietary interventions in prevention of allergic disease.</li> </ul>	<p><b>Classroom discussion:</b></p> <ul style="list-style-type: none"> <li>The principals and purpose of the elimination diet in nutritional management. Using the worksheets provided students discuss and record the types of food included and restricted and their reasons.</li> </ul> <p><b>Worksheet:</b></p> <ul style="list-style-type: none"> <li>In small tutorial groups, students assess the IgG Food Sensitivity profiles provided and discuss the relevance, efficacy and application of this test in nutritional management of food allergies and intolerances. Students also identify the foods that should be avoided and provide a dietary intervention that would be suitable for the patient.</li> <li>Students present their findings to the class for feedback and critical discussion.</li> </ul>
4.	<p>Dietary prescriptions in metabolic disease:</p> <ul style="list-style-type: none"> <li>Insulin resistance, metabolic syndrome, hypoglycaemia, hyperglycaemia, diabetes type 1 and 2.</li> <li>Nutritional assessments, anthropometric indicators</li> <li>Biochemical and functional testing including glucose tolerance test, insulin and cortisol; associated urinary analysis.</li> <li>Dietary interventions for children and adolescence with type 1 diabetes.</li> <li>Dietary prescription for hypoglycaemia</li> </ul>	<p><b>Metabolic disease case study discussion:</b></p> <ul style="list-style-type: none"> <li>Students break into small tutorial groups and construct a dietary plan for the provided case. Each group will be provided with a specific metabolic condition and data analysis from a food analysis program in which they should: <ul style="list-style-type: none"> <li>Formulate treatment goals and actions</li> <li>Identify specific nutrients and thus foods related to each action.</li> <li>Identify appropriate biochemical and functional assessment methods.</li> <li>Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> <li>Students present their findings to the class for feedback and critical discussion.</li> </ul> <p><b>Worksheet:</b></p> <ul style="list-style-type: none"> <li>Students assess the metabolic functional and biochemical tests provided and identify any deficiencies or excesses in the functioning of these tests.</li> <li>Students discuss their findings within small tutorial groups and suggest dietary interventions to address these dysfunctions.</li> <li>Students present their findings to the class for feedback and critical discussion.</li> </ul>
5.	<p>Dietary therapy in cardiovascular disease (part 1):</p> <ul style="list-style-type: none"> <li>Conditions covered include hyperlipidaemia, microvascular disease, hypertension, and congestive heart failure.</li> <li>Insulin driven aspect of</li> </ul>	<p><b>Reading and Discussion:</b></p> <ul style="list-style-type: none"> <li>Consider the reading 'Sick Fat, Metabolic Disease and Atherosclerosis' and in small tutorial groups students discuss how the information presented in the study may affect the nutritional management of a client with metabolic disease.</li> <li>Groups present their findings to the class for feedback and critical discussion.</li> </ul>



	<p>hyperlipidaemia.</p> <ul style="list-style-type: none"> <li>Physical signs and symptoms cardiovascular disease</li> <li>Biochemical and functional interpretation of pathology relating to blood lipids, inflammation markers and atherosclerosis pathogenesis.</li> <li>Dietary interventions that modulate TC, LDL and HDL cholesterol metabolism.</li> </ul>	<p><b>Worksheet:</b></p> <ul style="list-style-type: none"> <li>Students assess the metabolic functional and biochemical tests provided and identify any deficiencies or excesses in the functioning of these tests.</li> <li>Students discuss their findings within small tutorial groups and suggest dietary interventions to address these dysfunctions.</li> <li>Students present their findings to the class for feedback and critical discussion.</li> </ul>
6.	<p>Dietary therapy in cardiovascular disease (part 2):</p> <ul style="list-style-type: none"> <li>Therapeutic dietary planning in the prevention of and treatment for cardiovascular disease.</li> <li>Dietary factors considered include lipids, fibre, antioxidants, soy protein and alcohol.</li> <li>Discussion regarding DASH diet and predisposing lifestyle factors</li> <li>Altering dietary patterns for the prevention of hypertension in adults and children</li> </ul>	<p><b>Cardiovascular disease case study discussion:</b></p> <ul style="list-style-type: none"> <li>Students break into small tutorial groups and construct a dietary plan for the provided case. Each group will be provided with a specific cardiovascular condition and data analysis from a food analysis program in which they should: <ul style="list-style-type: none"> <li>Formulate treatment goals and actions</li> <li>Identify specific nutrients and thus foods related to each action.</li> <li>Identify appropriate biochemical and functional assessment methods.</li> <li>Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> <li>Students present their findings to the class for feedback and critical discussion.</li> <li>In small tutorial groups, students review and discuss the published papers and how the findings of these studies may be applied to the nutritional management of a client with cardiovascular disease.</li> <li>Students present their findings to the class for feedback and further discussion.</li> </ul>
7.	<p>Dietary intervention in respiratory disease:</p> <ul style="list-style-type: none"> <li>Conditions covered include Otitis media, Asthma, Cystic Fibrosis, Pneumonia, and COPD.</li> <li>Screening and assessment tools</li> <li>Biochemical and functional markers including peak flow meter and pancreatic enzymes.</li> <li>Suggested dietary alterations in recurrent otitis media.</li> </ul>	<p><b>Respiratory disease case study discussion:</b></p> <ul style="list-style-type: none"> <li>In small tutorial groups, students construct a dietary plan for the provided case. Each group will be provided with a specific respiratory condition and data analysis from A food analysis program in which they: <ul style="list-style-type: none"> <li>Formulate treatment goals and actions</li> <li>Identify specific nutrients and thus foods related to each action.</li> <li>Identify appropriate biochemical and functional assessment methods.</li> <li>Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> <li>Students present their findings to the class for feedback and critical discussion.</li> </ul> <p><b>Reading and Discussion:</b></p>



	<ul style="list-style-type: none"> <li>• Constructing a dietary plan to support chronic asthmatics</li> <li>• Dietary interventions and considerations in cystic fibrosis</li> </ul>	<ul style="list-style-type: none"> <li>• Consider the reading ‘<i>Cystic Fibrosis</i>’ and in small tutorial groups students discuss how the information presented in the study may affect the nutritional management of a client with cystic fibrosis.</li> <li>• Groups present their findings to the class for feedback and critical discussion.</li> </ul>
<p><b>NON-TEACHING WEEK</b>  <b>Semester 1</b> - This aligns with the week after Easter so it may fall between weeks 6 to 8.  <b>Semester 2</b> - The break week falls between Weeks 7 and 8.</p>		
<p><b>8.</b></p>	<p>Dietary therapy in psychiatric conditions:</p> <ul style="list-style-type: none"> <li>• Review the nutritional aspects of brain development and function</li> <li>• Dietary deficiencies and relevance to specific affective disorders.</li> <li>• Depression, anxiety, bipolar disorder, seasonal affective disorder and insomnia</li> <li>• Dietary planning in depression</li> <li>• Therapeutic dietary suggestions for bipolar disorder</li> </ul>	<p><b>Psychiatric condition case study discussion:</b></p> <ul style="list-style-type: none"> <li>• In small tutorial groups, students construct a dietary plan for the provided case. Each group will be provided with a specific psychiatric condition and data analysis from a food analysis program in which they: <ul style="list-style-type: none"> <li>○ Formulate treatment goals and actions</li> <li>○ Identify specific nutrients and thus foods related to each action.</li> <li>○ Identify appropriate biochemical and functional assessment methods.</li> <li>○ Construct a 3-day diet plan utilizing dietary analysis software to meet the patients’ needs.</li> </ul> </li> <li>• Students present their findings to the class for feedback and critical discussion.</li> <li>• In small tutorial groups, students review and discuss the published papers on psychiatric disorders and how the findings of these studies may be applied to the nutritional management of a client.</li> <li>• Students present their findings to the class for feedback and further discussion.</li> </ul>
<p><b>9.</b></p>	<p>Dietary planning and therapeutics in neurological dysfunction:</p> <ul style="list-style-type: none"> <li>• Conditions explored include Alzheimer’s disease, epilepsy, Parkinson’s disease and stroke related dysphagia</li> <li>• Screening and assessment</li> <li>• Dietary therapeutics in Alzheimer’s disease</li> <li>• Dietary interventions in patients experiencing dysphagia</li> </ul>	<p><b>Neurological dysfunction case study discussion:</b></p> <ul style="list-style-type: none"> <li>• In small tutorial groups, students construct a dietary plan for the provided case. Each group will be provided with a specific neurological condition and data analysis from a food analysis program in which they: <ul style="list-style-type: none"> <li>○ Formulate treatment goals and actions</li> <li>○ Identify specific nutrients and thus foods related to each action.</li> <li>○ Identify appropriate biochemical and functional assessment methods.</li> <li>○ Construct a 3-day diet plan utilizing dietary analysis software to meet the patients’ needs.</li> </ul> </li> <li>• Students present their findings to the class for feedback and critical discussion.</li> </ul> <p><b>Classroom discussion:</b></p> <ul style="list-style-type: none"> <li>• What would be appropriate dietary interventions</li> </ul>



		<p>useful for patients experiencing dysphasia?</p> <ul style="list-style-type: none"> <li>Students construct a 1-day diet and suggest useful foods on the worksheet provided.</li> </ul>
10.	<p>Immune system disease (part 1): Autoimmune disease:</p> <ul style="list-style-type: none"> <li>Multiple sclerosis, Myasthenia Gravis, SLE, Rheumatoid arthritis, scleroderma, Sjogren's syndrome, sarcoidosis</li> <li>Screening and assessment</li> <li>Dietary therapeutics in autoimmune disease.</li> <li>Dietary interventions in patients with autoimmune disease.</li> </ul>	<p><b>Autoimmune case study discussion:</b></p> <ul style="list-style-type: none"> <li>In small tutorial groups, students construct a dietary plan for the provided case. Each group will be provided with a specific autoimmune condition and data analysis from a food analysis program in which they: <ul style="list-style-type: none"> <li>Formulate treatment goals and actions</li> <li>Identify specific nutrients and thus foods related to each action.</li> <li>Identify appropriate biochemical and functional assessment methods.</li> <li>Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> <li>Students present their findings to the class for feedback and critical discussion.</li> <li>In small tutorial groups, students review and discuss the published papers on autoimmune disease and how the findings of these studies may be applied to the nutritional management of a client.</li> <li>Students present their findings to the class for feedback and further discussion.</li> </ul>
11.	<p>Immune system disease (part 2):</p> <ul style="list-style-type: none"> <li>HIV and AIDS</li> <li>Dietary therapeutics in HIV and AIDS</li> <li>Constructing a dietary plan to support HIV and AIDs patients.</li> </ul>	<p><b>HIV/AIDS case study discussion:</b></p> <ul style="list-style-type: none"> <li>In small tutorial groups, students construct a dietary plan for the provided case. Each group will be provided with a specific case and data analysis from a food analysis program in which they: <ul style="list-style-type: none"> <li>Formulate treatment goals and actions</li> <li>Identify specific nutrients and thus foods related to each action.</li> <li>Identify appropriate biochemical and functional assessment methods.</li> <li>Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> <li>Students present their findings to the class for feedback and critical discussion.</li> </ul> <p><b>Group activity:</b></p> <ul style="list-style-type: none"> <li>In small tutorial groups, students review and discuss the published papers on HIV/AIDS and how the findings of these studies may be applied to the nutritional management of a client.</li> <li>Students present their findings to the class for feedback and further discussion.</li> </ul>
12.	<p>Dietary interventions in the treatment of musculoskeletal disorders:</p>	<p><b>Musculoskeletal case study discussion:</b></p> <ul style="list-style-type: none"> <li>In small tutorial groups, students construct a dietary</li> </ul>



	<ul style="list-style-type: none"> <li>• Conditions explored include fibromyalgia, osteoarthritis, carpal tunnel syndrome, and back and neck pain.</li> <li>• Screening and assessment</li> <li>• Dietary therapeutics in Alzheimer's disease</li> <li>• Dietary interventions in patients experiencing musculoskeletal disorders.</li> </ul>	<p>plan for the provided case. Each group will be provided with a specific musculoskeletal condition and data analysis from A food analysis program in which they:</p> <ul style="list-style-type: none"> <li>○ Formulate treatment goals and actions</li> <li>○ Identify specific nutrients and thus foods related to each action.</li> <li>○ Identify appropriate biochemical and functional assessment methods.</li> <li>○ Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> <ul style="list-style-type: none"> <li>• Students present their findings to the class for feedback and critical discussion.</li> </ul> <p><b>Activity:</b></p> <ul style="list-style-type: none"> <li>• In small tutorial groups, students review and discuss the published papers and how the findings of these studies may be applied to the nutritional management of a client with a musculoskeletal condition.</li> <li>• Students present their findings to the class for feedback and further discussion.</li> </ul>
13.	<p>Dietary therapy in Cancer:</p> <ul style="list-style-type: none"> <li>• Dietary therapeutics in cancer.</li> <li>• Constructing a dietary plan to support cancer patients.</li> <li>• Dietary therapy in radiation and chemotherapy.</li> </ul>	<p><b>Cancer case study discussion:</b></p> <ul style="list-style-type: none"> <li>• In small tutorial groups, students construct a dietary plan for the provided case. Each group will be provided with a specific case and data analysis from a food analysis program in which they: <ul style="list-style-type: none"> <li>○ Formulate treatment goals and actions</li> <li>○ Identify specific nutrients and thus foods related to each action.</li> <li>○ Identify appropriate biochemical and functional assessment methods.</li> <li>○ Construct a 3-day diet plan utilizing dietary analysis software to meet the patients' needs.</li> </ul> </li> <li>• Students present their findings to the class for feedback and critical discussion.</li> </ul> <p><b>Classroom discussion:</b></p> <ul style="list-style-type: none"> <li>• How would dietary therapy change in the case of radiation therapy and chemotherapy? What foods would be beneficial or harmful for these clients?</li> </ul>
14.	<b>Non-Teaching Week / Practical Exam Week 1.</b> Note that make-up classes may be scheduled this week.	
15.	<b>Non-Teaching Week / Practical Exam Week 2.</b> Note that make-up classes may be scheduled this week.	
16-17.	<b>Final Exam Weeks</b> (there is no final exam for this subject)	

**Set Text Requirements:**

1. Mahan, L. K., & Raymond, J. L. (Eds.) (2016). <i>Krause's food &amp; the nutrition care process</i> (14th ed.).
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St. Louis, MO: Elsevier.

**Recommended readings:**

1. Appleton, A., & Vanbergen, O. (2007). <i>Metabolism and nutrition</i> (4th ed.). Edinburgh, UK: Mosby Elsevier. [ebook available]
2. Croxford, S., Itsiopoulos, C., Forsyth, A., Belski, R., Thodis, A., Shepherd, S., & Tierney, A. (2015). <i>Food and nutrition throughout life</i> . Crows Nest, NSW: Allen & Unwin.
3. Geissler, C., & Powers, H. (2010). <i>Human nutrition</i> (12th ed.). Netherlands: Elsevier Churchill Livingstone. [ebook available]
4. Ross, A. C., Caballero, B., Cousins, R. J., Tucker, K. L., & Ziegler, T. R. (2014). <i>Modern nutrition in health and disease</i> (11th ed.). Philadelphia, PA: Wolters Kluwer/Lippincott Williams & Wilkins. [ebook available].
5. Whitney, E., Rolfes, S. R., Crowe, T., Cameron-Smith, D., & Walsh, A. (2016). <i>Understanding nutrition, Australia and New Zealand edition</i> (3rd ed.). South Melbourne, VIC: Cengage Learning.

**Assessments:**

Assessment Item	Topic/s	Learning Outcomes Assessed	Week Content Delivered	Week Due	Weighting
<b>Biochemical and Functional Analysis Report</b> (1500 words)	Using the biochemical and functional assay case data provided, students submit a complete nutritional analysis of the testing outcomes, providing theories as to specific nutritional deficiencies that may be contributing to the biochemical change.	1, 4	1-4	Sunday following Week 6	40%
<b>Case Study - Nutrition Assessment and Dietary Plan</b> (2500 words)	Students are provided with a choice of three case studies in which detailed anthropometric, biochemical and functional analysis and dietary intake data will be provided for each.  Students construct a therapeutic dietary plan for the chosen case considering all aspects of provided data and disease pathology.  A brief discussion of envisaged dietary plan drawing upon current scientific evidence will also be included.	1, 2, 3, 4, 5	1-12	Sunday following Week 12	60%



Formative assessment will be undertaken early in the subject and then on a regular basis throughout the duration of the subject to provide students and staff with feedback on the learning. It may take the form of quizzes, small group and classroom presentations, writing activities, peer review where appropriate.

Early formative assessment would be used to determine any necessary intervention strategies to ensure students are able to complete the program in the normal subject duration.

Feedback will also be provided to the students on summative assessments undertaken during the semester.