



SUBJECT OUTLINE

Subject Name:

Medicinal Food Science

Subject Code:

NMDM121

SECTION 1 – GENERAL INFORMATION

| Award/s: | Total Course Credit Points: | Level: |
|--|---------------------------------|-------------------------------|
| Bachelor of Health Science (Naturopathy) | 128 | Core 2 nd Year |
| Bachelor of Health Science (Nutritional and Dietetic Medicine) | 96 | Core 1 st Year |
| Bachelor of Complementary Medicine | 48 | Elective 3 rd Year |
| Diploma of Health Science | 32 | Elective 1 st Year |
| Duration: 1 Semester | | |
| Subject is: Core or Elective as noted | Subject Credit Points: 4 | |

Student Workload:

| No. timetabled hours per week: | No. personal study hours per week: | Total hours per week: |
|--------------------------------|------------------------------------|-----------------------|
| 6 | 4 | 10 |

Delivery Mode*:

On campus Online / Digital Blended Intensive

Weekly Session[^] Format/s - 2 sessions per week:

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| <input checked="" type="checkbox"/> eLearning modules: | Lectures: Interactive adaptive online learning modules Equivalent to 1 x 3 hour session per week. |
| <input checked="" type="checkbox"/> Livestream workshops / tutorials: | <input checked="" type="checkbox"/> 3 hours 1 x 3 hour livestreamed workshop per week. Completion of pre-session activities may be required. |

*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: BIOH111

Co-requisites: NMDF121

SECTION 2 – ACADEMIC DETAILS

Subject Rationale

Students explore the therapeutic potentials of various whole foods through the examination of natural chemical constituents, in order to understand the effects on health outcomes, disease risk, prevention and/or treatment.



This subject also introduces students to the theory and practice of food-based science, including food spoilage, food additives and natural toxins. The practical tutorials and assignment tasks encourage students to explore, present and analyse methods of food preparation and cooking, as well as cultivation and storage practices. Medicinal Food Science provides a foundation for later subjects where nutrition and diet therapy are discussed and applied in more depth.

Learning Outcomes

1. Identify and explain the various dietary philosophies and principles in the application of the therapeutic potentials of food categories from the perspectives of traditional knowledge, use, and research.
2. Explain the mechanism of action of the chemical constituents in nutritional compounds and describe the medicinal value and biomedical effects of food materials.
3. Describe the various manufacturing and processing methods and explain the impact they have on the environment and the nutritional and therapeutic potential of foods.
4. Explore and describe the influences of external factors on food quality and safety, and how these impact both nutritional status and the therapeutic potential of foods.
5. Describe the Australian Workplace Safety and Hygiene regulations relating to working in a kitchen, preparing food for commercial use.
6. Identify food labelling regulations and apply this knowledge to consumer education.

Assessment Tasks

| Type | Learning Outcomes Assessed | Week Content Delivered | Due | Weighting |
|--|----------------------------|------------------------|---------|-----------|
| Online Quiz 30 minutes (Multiple choice, true/false, fill in the blanks) | 3, 5 & 6 | 1-4 | Week 5 | 15% |
| Essay (1000 words) | 2-5 | 1-5 | Week 9 | 30% |
| Workshop Portfolio (Workbook to be completed relating to each weekly practical session) (2000 words equivalent) | 1-6 | 1-13 | Week 14 | 55% |

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



Prescribed Readings:

1. Braun, L., & Cohen, M. (2017). *Essential herbs and natural supplements*. Elsevier Australia.
2. Wahlqvist, M. L., & Gallegos, D. (Eds.). (2020). *Food and nutrition: Sustainable food and health systems* (4th ed.). Allen & Unwin. [ebook available]

A reading list that contains links to recent articles on phytochemicals and current research will be available to the students on the Learning Management System.

Recommended Readings:

1. Bagchi, D., & Nair, S. (Eds.). (2017). *Developing new functional food and nutraceutical products*. Academic Press. [ebook available]
2. Boye, J. I. (2015). *Nutraceutical and functional food processing technology*. Wiley Blackwell. [ebook available]
3. Denys, C. J. (2013). *Antioxidant properties of spices, herbs and other sources*. Springer. [ebook available]
4. Galanakis, C. M. (2017). *Nutraceutical and functional food components: Effects of innovative processing techniques*. Academic Press. [ebook available]
5. Grubb, A., & Raser-Rowland, A. (2012). *The weed foragers handbook: A guide to edible and medicinal weeds in Australia*. Hyland House Publishing. [ebook available]
6. Hefferon, K. (2012). *Let thy food be thy medicine: Plants and modern medicine*. Oxford University Press. [ebook available]
7. Higdon, J. & Drake, V. (2013). *An evidence-based approach to phytochemicals and other dietary factors* (2nd ed.). Thieme. [ebook available]
8. Kirchmann, H., & Bergström, L. (Eds.). (2009). *Organic crop production: Ambitions and limitations*. Springer. [ebook available]
9. Koch, M. U. (2011). *Laugh with health* (23rd ed.). Exisle. [ebook available]
10. Nestle, M. (2013). *Food politics: How the food industry influences nutrition and health* (Revised and expanded 10th anniversary ed.). University California Press. [ebook available]
11. Newton, J. (2016). *The oldest foods on Earth: A history of Australian native foods, with recipes*. New South Publishing.
12. Pinnock, D. (2011). *Medicinal cookery: How you can benefit from nature's edible pharmacy*. RightWay. [ebook available]
13. Sultanbawa, Y., & Sultanbawa, F. (Eds.). (2016). *Australian native plants: Cultivation and uses in the health and food industries*. CRC Press; Taylor & Francis Group. [ebook available]
14. Varzakas, T., Labropoulos, A., & Anestis, S. (2012). *Sweeteners: Nutritional aspects, applications, and production technology*. CRC Press. [ebook available]
15. Whitney, E., Rady Rolfes, S., Crowe, T., & Walsh, A. (2019). *Understanding nutrition* (4th Australian and New Zealand ed.). Cengage Learning. [ebook available]
16. Williams, C. J. (2010). *Medicinal plants in Australia. Volume 1, bush pharmacy*. Rosenberg Publishing. [ebook available]
17. Williams, C. J. (2012). *Medicinal plants in Australia. Volume 3, plants, potions and poisons*. Rosenberg Publishing. [ebook available]



Subject Content

| Week | eLearning Modules | Livestream Workshop |
|------|--|---|
| 1. | <p>Introduction (Subject Outline / Subject Aims / Assessment / Teaching Resources)</p> <p>Introduction to Medicinal Food Science</p> <ul style="list-style-type: none"> ➤ Dietetic principles in Nutritional Medicine ➤ Recommended dietary intake (RDI) and underpinning principles ➤ Food as medicine concepts and principles <p>Food Science - Farming Methods</p> <ul style="list-style-type: none"> ➤ Conventional farming practices ➤ Organic and other alternative farming methods ➤ Impact of farming methods on the environment and food quality | <p>Activities are developed to allow the students to explore relevant concepts, expand on ideas and have peer and lecturer interaction. Activities also allow for formative assessment and feedback.</p> <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> ➤ Review of learning module topics ➤ Review of current evidence ➤ Group work and facilitated discussion |
| 2. | <p>Food Science - Food Labelling Regulations</p> <ul style="list-style-type: none"> ➤ The role of Food Standards Australia New Zealand (FSANZ) ➤ Labelling regulations ➤ Genetically modified foods <p>Food Science - Food Manufacturing and Processing Techniques</p> <ul style="list-style-type: none"> ➤ Common food manufacturing and processing techniques ➤ The advantages and disadvantages of food manufacturing and processing techniques ➤ Nutrient preservation | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> ➤ Review of learning module topics ➤ Review of current evidence ➤ Group work and facilitated discussion |
| 3. | <p>Food Science: Food Additives</p> <ul style="list-style-type: none"> ➤ Colours, flavours, preservatives and other additives ➤ Health effects of food additives in food <p>Food Spoilage and Disease</p> <ul style="list-style-type: none"> ➤ Investigate food spoilage, food mediated disease (caused by micro-organisms), and natural toxins associated with deleterious health outcomes | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> ➤ Review of learning module topics ➤ Review of current evidence ➤ Group work and facilitated discussion |
| 4. | <p>Food Science: Introduction to Functional Foods</p> <ul style="list-style-type: none"> ➤ Functional foods ➤ Nutraceuticals and bioactive food constituents | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> ➤ Review of learning module topics ➤ Review of current evidence ➤ Group work and facilitated discussion |



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| | <ul style="list-style-type: none"> Therapeutic juices | |
| 5. | <p>Food & Culture: Traditional Uses of Food as Medicine</p> <ul style="list-style-type: none"> Kitchen pharmacy Edible weeds and flowers Food remedies and first aid Topical treatments | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> Review of learning module topics Review of current evidence Group work and facilitated discussion |
| 6. | <p>Food & Culture: Australian Indigenous Plants and Foods</p> <ul style="list-style-type: none"> Indigenous food systems in Australia Nutritional values, phytochemical profiles and therapeutic benefits | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> Review of learning module topics Review of current evidence Group work and facilitated discussion |
| 7. | <p>Food as Medicine: Culinary Herbs and Spices</p> <ul style="list-style-type: none"> Herbs Spices Nutritional values, phytochemical profiles and therapeutic benefits | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> Review of learning module topics Review of current evidence Group work and facilitated discussion |
| <p>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 & Online students – The non-teaching week falls between Weeks 7 and 8</p> | | |
| 8. | <p>Food as Medicine: Pulses (Legumes) and Grains</p> <ul style="list-style-type: none"> Nutritional values, phytochemical profiles and therapeutic benefits | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> Review of learning module topics Review of current evidence Group work and facilitated discussion |
| 9. | <p>Food as Medicine: Vegetables</p> <ul style="list-style-type: none"> Nutritional values, phytochemical profiles and therapeutic benefits | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> Review of learning module topics Review of current evidence Group work and facilitated discussion |
| 10. | <p>Food as Medicine: Fruits</p> <ul style="list-style-type: none"> Nutritional values, phytochemical profiles and therapeutic benefits | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> Review of learning module topics Review of current evidence Group work and facilitated discussion |
| 11. | <p>Food as Medicine: Medicinal Mushrooms, Algae and Sprouts</p> <ul style="list-style-type: none"> Nutritional values, phytochemical profiles and therapeutic benefits <p>Food as Medicine: Fermented Foods and Probiotics</p> <ul style="list-style-type: none"> Nutritional values, phytochemical profiles and therapeutic benefits | <p>The livestream workshop session will include:</p> <ul style="list-style-type: none"> Review of learning module topics Review of current evidence Group work and facilitated discussion |



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| 12. | Food as Medicine: Nuts, Seeds and Oils <ul style="list-style-type: none"> ➤ Nutritional values, phytochemical profiles and therapeutic benefits | The livestream workshop session will include: <ul style="list-style-type: none"> ➤ Review of learning module topics ➤ Review of current evidence ➤ Group work and facilitated discussion |
| 13. | Food as Medicine: Foods with potential risk <ul style="list-style-type: none"> ➤ Caffeinated drinks and foods ➤ Alcoholic beverages, sweeteners (natural and artificial), Phytochemical toxins, related nutritional values, phytochemical profiles, therapeutic benefits and health risks | The livestream workshop session will include: <ul style="list-style-type: none"> ➤ Review of learning module topics ➤ Review of current evidence ➤ Group work and facilitated discussion |
| 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. | |