ENDEAVOUR College of Natural Health

SUBJECT OUTLINE

Subject Name:

Clinical Diagnostic Techniques

Subject Code:

HMCL223

SECTION 1 – GENERAL INFORMATION

Award/s:		**Total Course Credit Points:**	**Level:**
	Bachelor of Health Science (Naturopathy)	128	3rd Year
	Bachelor of Health Science (Nutritional and Dietetic Medicine)	96	2nd Year

Duration: 1 Semester

Subject Coordinator: Bronwen Pearson (Gold Coast Campus)

Subject is: Core **Subject Credit Points:** 2

Student Workload:

No. timetabled hours per week: 3	No. personal study hours per week: 2	Total hours per week: 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: Mid-semester quiz – Week 1, Portfolio assessment – Week 4, Case Study – Week 5	
	Full Time	
	Part Time	

Pre-requisites: NMDF121, BIOC211, BIOP211

Co-requisites: BIOS222

SECTION 2 – ACADEMIC DETAILS

Subject Rationale

Building on Pathology and Clinical Science, Pharmacology and Foundations of Human Nutrition, this subject introduces diagnostic and functional assessment techniques useful to the naturopathic clinician. Both in-office tests as well as those conducted through external laboratories are included. These procedures and the information

are essential to guide and assess naturopathic care. Correct interpretation and consideration of clinical context is fundamental to safe and effective case management, both in developing a working diagnosis and monitoring the effectiveness and safety of treatment.

Learning Outcomes

1. Describe the range of laboratory and other diagnostic tests available and their role in naturopathic clinical case management.
2. Demonstrate an understanding of the pathophysiological and biochemical imbalances that lead to alterations in the various diagnostic tests that are indicative of chronic disease states
3. Describe the correct specimen collection and analytical processes for a variety of diagnostic tests.
4. Interpret laboratory and other diagnostic test results in the context of client's presenting complaints and incorporate results into the appropriate holistic case analysis
5. Demonstrate and justify the selection of an appropriate diagnostic test in the context of a patients presenting symptoms and history and /or informing future treatment.
6. Discuss the context, strengths and limitations of laboratory and other tests in naturopathic clinical cases
7. Demonstrate effective communication of laboratory and other diagnostic test results to the client and other health professionals.

Assessment Tasks

Type	Learning Outcomes Assessed	Session Content Delivered	Due	Weighting
Mid-semester Online Quiz (50 min)	1-6	1-6	Week 7	20%
Portfolio Assessment (2500 words)	1-7	1-12	Week 13	35%
Case Study (Group Assessment) (2 hours)	1-7	1-13	Week 14 (held at standard class time)	45%
All written assessments and online quizzes are due at 11:55 p.m. Sunday and submitted through the LMS				

Prescribed Readings:

1. Pagana, K. D., Pagana, T. J., & Pagana, T. N. (2016). *Mosby's diagnostic and laboratory test reference* (13th ed.). Elsevier.
2. The Royal College of Pathologists of Australasia. (2015). *RCPA manual*. http://rcpamanual.edu.au/

Recommended Readings:

1. American Association for Clinical Chemistry. (2015). *Lab tests online*. https://labtestsonline.org/
2. Chernecky, C. C., & Berger, B. J. (2013). *Laboratory tests and diagnostic procedures* (6th ed.). Elsevier. [ebook available]
3. Gibson, R. S. (2005). *Principles of nutritional assessment* (2nd ed.). Oxford University Press.
4. Lord, R. S., & Bralley, J. A. (2008). *Laboratory evaluations for integrative and functional medicine* (2nd ed.). Metametrix Institute.
5. Nicoll, D., Lu, C. M., Pignone, M., & McPhee, S. J. (2012). *Pocket guide to diagnostic tests* (6th ed.). McGraw-Hill Medical.

Subject Content

Week	Lectures	Tutorials
1.	**Introduction** (Subject Outline / Subject Aims / Assessment / Teaching Resources) **Introduction to Clinical Diagnostic Techniques** • Australian Government, Department of Health: National Pathology Accreditation Advisory Council (NPAAC) • National Association of Testing Authorities (NATA) • Your role in Health Care landscape • Testing standards, populations and reference ranges (including outliers) • Ranges for optimal health • Gender and age variation	Case study Ranges of optimal health
2.	**Screening Blood Tests I** • Electrolyte/Liver Function Test (E/LFT) • Full Blood Count (FBC) • Anion Gap • Electrolytes	Case study Clinical signs/ symptoms, patient history and correlations with E/LFT, FBC anion gap and electrolyte Strengths, limitations and indications for of E/LFT, FBC anion gap and electrolyte Implications for treatment from biomedical and naturopathic context
3.	**Screening Blood Tests II** • Electrolyte/Liver Function Test (E/LFT) • Full Blood Count (FBC) • Iron studies	Case study Clinical signs/ symptoms, patient history and correlations with E/LFT, FBC and iron studies Strengths, limitations and indications for of E/LFT, FBC and iron studies Implications for treatment from biomedical and naturopathic context

4.	**Screening Blood Tests (continued)** • Blood lipids (Cholesterol, triglycerides, LDL and HDL) • Homocysteine **Urine Testing** • Urine test: specific gravity, pH, colour, protein, odour, oxalate crystals, bacteria (and metabolites), pregnancy and biomarkers (neurotransmitter, energy cycles) **Inflammation** • C-Reactive Protein (CRP) • Erythrocyte Sedimentation Rate (ESR)	Case study Clinical signs/ symptoms, patient history and correlations with the findings of pathology reports for cholesterol blood lipids and inflammatory markers Strengths limitations and indications of cholesterol blood lipids and inflammatory markers Implications for treatment and effectiveness of treatment from biomedical and naturopathic context Case study Clinical signs/ symptoms, patient history and correlations and indications with various parameters in urine testing
5.	**Glucose/Insulin Regulation** • HbA1c • Fasting glucose and insulin • Glucose/Insulin Tolerance Test (GITT) • Glucose/Insulin Tolerance Test + Cortisol (GITT + Cortisol) • Glucagon • HOM-IR	Case study Clinical signs/ symptoms, patient history and correlations with results of blood glucose investigations from biomedical and naturopathic perspective Strengths limitations and indications of the various blood glucose/ glucose tolerance and insulin resistance tests Implications for treatment and effectiveness of treatment from biomedical and naturopathic context
6.	**Screening Blood Tests Case Studies** • Underlying causes for blood test variation • Metabolic Syndrome • Pre-diabetes • Diabetes • Anaemia	Medico-legal aspects relating to pathology testing, ordering, requests and interpretation Communication with health practitioners
7.	**Macro, micro nutrient & co-factor assessments** • Vitamins (A, B and D) • Selenium • Iodine • Zinc & Copper • Essential Fatty Acid Profiles • Omega-3 and Omega 6	Case study Clinical signs/ symptoms, patient history and correlations for various macronutrient, micronutrient and co-factor deficiency's Implications for treatment and effectiveness of treatment from biomedical and naturopathic context The case for and against Vitamin D testing
	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	
8.	**Allergy Testing** • Immunoglobulins (IgE, IgG, IgA, IgM) • Antibody food panels • Scratch testing • In-office testing **Autoimmune Testing** • Specific Antibodies (Rheumatoid Factor, Thyroid, ANA)	Case study Describe clinical indications for metabolic assessment and analyses of metabolites in stool Incorporate findings into naturopathic case analyses
9.	**Functional Hormone Testing I** • Cortisol • Oestrogen, Progesterone, Testosterone, DHT, DHEA, Follicle Stimulating Hormone (FSH), Luteinising Hormone (LH), Sex hormone binding globulin, pregnancy • Menstrual cycle assessment • Pregnancy testing	Case study Clinical signs/ symptoms, patient history and correlations with results from hormone tests Implications for treatment and effectiveness of treatment from biomedical and naturopathic context
10.	**Functional Hormone Testing II** • Thyroid: Thyroid Stimulating Hormone (TSH), fT3 • fT4, reverse T3 • TSH receptor antibodies	Clinical signs/ symptoms, patient history and correlations with results from hormone tests Implications for treatment and effectiveness of treatment from biomedical and naturopathic context
11.	**Epigenetics and Genetic testing** • Methylation • Hormone fertility • Nutrigenomic • Detoxification • HLA markers • Ethical issues	Case study Ethical and legal aspects of epigenetic and genetic testing from patient and practitioner perspective Future implications for treatment
12.	**Stool Testing & microbiome** • GIT integrity, permeability, inflammation and immunity • Culture growth and antimicrobial sensitivity • Microflora genetic/PCR testing • Parasites	Case study Clinical signs/ symptoms, patient history and correlations with various types of stool and blood tests. Interpretation of gut microbiome tests Implications for treatment and effectiveness of treatment from biomedical and naturopathic context
13.	**Environmental toxicology**	Case study

	• Urine / Plasma Copper, Lead, mercury, cadmium	Clinical signs/ symptoms, patient history and indications for various environmental /industrial/ workplace toxicology tests. Implications for treatment and effectiveness of treatment from biomedical and naturopathic context
14.	**Case Study (Group Assessment)**	
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	