

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	3 rd Year
Bachelor of Health Science (Nutritional and Dietetic Medicine)	96	2 nd Year
Duration: 1 Semester		
Subject Coordinator: Elizabeth MacGregor (Perth 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
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Delivery Mode:

Face to face	2 hour lecture	1 hour tutorial
E-Learning	Details:	Narrated Powerpoint presentations Tutorial - Asynchronous tutor moderated discussion forum and activities Student handouts, web resources
Intensive Delivery	Details:	Summer School - contact hours are delivered over 5 weeks with 2 x 4 hour days delivered per week. Assessment: Tutorial attendance for the intensive delivery is assessed in class. Mid-Semester exam for the intensive is completed in an additional session in weeks 3 of the intensive. Case study assignment for intensive delivery is due to be uploaded by Sunday on week 5 of the Summer School period. Final exam is conducted in week 6 of summer school.
Full Time		
Part Time		

Pre-requisites: BIOC211, BIOP211, NMDF121

Co-requisites: BIOS222

SECTION 2 – ACADEMIC DETAILS

Subject Rationale

Building on Pathology and Clinical Science, Pharmacology and Foundations of Human Nutrition this subject introduces commonly used diagnostic and functional laboratory techniques useful to the natural medicine clinician. Included are both in-office tests as well as those conducted through external laboratories. These procedures and the information that can be gained from them are essential to confirm and assess clinical data generated through client consultations. Such assessment is fundamental to safe and effective case-management, both in developing a diagnosis and monitoring treatment.

Learning Outcomes

1. Demonstrate an understanding of laboratory and other diagnostic tests according to the method and purpose of testing and specimen collection.
2. Master the guidelines for proper specimen preparation and test performance, standard precautions, communication of results and referrals (for clients and to other health professionals) and other clinically important information for health care professionals.
3. Analyse and evaluate techniques and investigative methods used in pathology and functional laboratory testing.

4. Identify and interpret indicated clinical tests as part of case management.
5. Retrieve, evaluate and use knowledge gained in this subject to interpret different sample scenarios and case studies.

Assessment Tasks

Type	Learning Outcomes Assessed	Weeks Content Delivered	Week Due	Weighting
Tutorial participation (80% attendance required)	1-5	1-13	1-13	10%
Mid-Semester Exam (1 hour)	1-5	1-5	6	20%
Case Study Assignment (1500 words)	1-5	1-11	Sunday following week 12	25%
Final Exam (2 hours)	1-5	1-13	Final Exam Period	45%

Prescribed readings:

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

Recommended readings:

1. American Association for Clinical Chemistry. (2015). *Lab tests online*. Retrieved from **Error! Hyperlink reference not valid.**www.labtestsonline.org
2. Chernecky, C. C., & Berger, B. J. (2013). *Laboratory tests and diagnostic procedures* (6th ed.). St Louis, MO: Elsevier. [ebook available]
3. Gibson, R. S. (2005). *Principles of nutritional assessment* (2nd ed.). New York, NY: Oxford University Press.
4. Lord, R. S., & Bralley, J. A. (2008). *Laboratory evaluations for integrative and functional medicine* (2nd ed.). Duluth, GA: Metamatrix Institute.
5. Nicoll, D., Lu, C. M., Pignone, M., & McPhee, S. J. (2012). *Pocket guide to diagnostic tests* (6th ed.). New York, NY: McGraw-Hill Medical.

Subject Content

Week	Lecture	Tutorial
1.	Introduction <ul style="list-style-type: none"> • Testing standards, populations and reference ranges • Physiologically optimal ranges • Gender and age differences Screening blood tests Part I <ul style="list-style-type: none"> • Electrolyte/Liver Function Test (E/LFT) • Full Blood Count (FBC) • Iron studies 	Case study based application of test results / reports to relevant clinical situations
2.	Screening blood tests Part II	Case study based application of test results / reports to relevant clinical situations

	<ul style="list-style-type: none"> Cholesterol panel Homocysteine Inflammation <ul style="list-style-type: none"> C-Reactive Protein (CRP) Erythrocyte Sedimentation Rate (ESR) 	
3.	Glucose/Insulin regulation <ul style="list-style-type: none"> HbA1c Serum Glucose Glucose/Insulin Tolerance Test (GITT) Glucose/Insulin Tolerance Test + Cortisol (GITT+Cortisol) Glucagon HOM-IR 	Case study based application of test results / reports to relevant clinical situations
4.	Allergy testing <ul style="list-style-type: none"> Immunoglobulins (IgE, IgG, IgA, IgM) Antibody food panels Scratch testing In-office testing Autoimmune testing <ul style="list-style-type: none"> Specific Antibodies (Rheumatoid Factor, Thyroid, ANA) 	Case study based application of test results / reports to relevant clinical situations
5.	Micronutrient Assessments <ul style="list-style-type: none"> Serum and red cell tests Functional methods for micronutrient assessments Pyrrole testing Live Blood Screening 	Case study based application of test results / reports to relevant clinical situations
6.	Mid-semester exam Hormone testing: blood spot, salivary, serum <ul style="list-style-type: none"> Cortisol Oestrogen, Progesterone, Testosterone, DHT, DHEA, Follicle Stimulating Hormone (FSH), Luteinising Hormone (LH), Sex hormone binding globulin 24 hour urine- estrogen metabolites Thyroid: Thyroid Stimulating Hormone (TSH), fT3, fT4, reverse T3, TSH receptor antibodies Antidiuretic Hormone (ADH) Parathyroid Hormone (PTH) 	Case study based application of test results / reports to relevant clinical situations
7.	Urine Testing <ul style="list-style-type: none"> Urine test: specific gravity, pH, colour, odour, oxalate crystals, bacteria, blood etc In-office urine testing Organic Acid Metabolic Profile - energy cycle metabolites, markers of neurotransmitter, detoxification and bacterial metabolism 	Case study based application of test results / reports to relevant clinical situations
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 break week falls between Weeks 7 and 8.		
8.	Stool Testing <ul style="list-style-type: none"> • GIT integrity, inflammation and immunity • Culture growth and antimicrobial sensitivity • Genetic/PCR testing • Parasites 	Case study based application of test results / reports to relevant clinical situations
9.	Electrodiagnostic tests <ul style="list-style-type: none"> • Electrocardiography • Electroencephalography • Electromyography • Holter monitoring Imaging <ul style="list-style-type: none"> • X ray • Ultrasound • Magnetic Resonance Imaging (MRI) • CT Scans • DEXA • Nuclear Scanning – radionucleotide testing • Clinical Digital Thermography 	Case study based application of test results / reports to relevant clinical situations
10.	Detoxification and Toxicity Testing <ul style="list-style-type: none"> • Phase I and Phase II detoxification assessments • Toxins, metals – hair and urine • Environmental pollutants 	Case study based application of test results / reports to relevant clinical situations
11.	Essential fatty acid profiles <ul style="list-style-type: none"> • Omega-3-DPA,DHA, EPA, ALA • Omega 6- LA, DGLA, AA Hair mineral analysis <ul style="list-style-type: none"> • Deficiencies and excesses 	Case study based application of test results / reports to relevant clinical situations
12.	Amino Acids <ul style="list-style-type: none"> • Gastro-intestinal markers • Mineral and vitamin metabolism markers • Neurotransmitter markers • Urea cycle and detox factors 	Case study based application of test results / reports to relevant clinical situations
13.	Genetic Testing <ul style="list-style-type: none"> • Basic Genetic Marker Testing (eg. HLA-B27) • DNA profile testing • Ethical issues 	Case study based application of test results / reports to relevant clinical situations
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.	
16-17.	Final Exam Weeks 1 & 2 On campus enrolled students: Please refer to the Exam Timetable for your local campus for the exact day and time of exam. Online enrolled students: You are required to sit examinations on campus per the Examination Policy - Higher Education . The Exam Week for subjects offered online is identified in the Online Calendar.	

