



<b>DESCRIPTION</b>	Time to explore the microcosm in detail! With an emphasis on organic chemistry, this Unit of Study outline describes the structure and interactions of substances as they relate to biochemical processes within the human body.	
<b>DURATION</b>	72 hours	
<b>LEARNING OUTCOMES</b>	By the conclusion of the Unit of Study, students should be able to: <ol style="list-style-type: none"> <li>1. Identify structural components of chemical compounds relevant to biochemical reactions.</li> <li>2. Identify the organic compounds involved in biochemical reactions.</li> <li>3. Describe cellular reproduction in the human body.</li> <li>4. Explain the effect of diet on metabolism.</li> <li>5. Describe chemical and biochemical reactions in metabolism.</li> <li>6. Identify the toxic effects of Chemical Compounds.</li> <li>7. Outline the methods of biochemical diagnosis.</li> <li>8. Identify the base of chemotherapy.</li> </ol>	
<b>TEACHING METHOD</b>	Lectures, tutorials.	
<b>ASSESSMENT</b>	Formative Examination Process – Mid Term	50%
	Formative Examination Process – End of Term	50%
	Applies to each term (x3)	
	<b>Pass mark</b>	<b>60%</b>
	<b>Both components must be passed at 60% in order to pass this subject satisfactorily.</b>	
<b>COMPETENCIES PARTIAL COMPLETION</b>	Successful completion of this Unit of Study is in partial completion of the following Health Training Package HLT07 Units of Competency:	
	HLTAP501B - Confirm physical health status	
<b>ATTENDANCE</b>	80% minimum.	
<b>PRE-REQUISITES</b>	Chemistry	
<b>CO-REQUISITES</b>	Nil.	
<b>MATERIALS REQUIRED</b>	Notepad, Pen.	

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**TEXTBOOKS****Compulsory:**

Bettelheim FA, Brown WH, Campbell MK, Farrell, SO, Torres OJ. 2012. *Introduction to General, Organic & Biochemistry*. 10<sup>th</sup> Edition. Cengage Learning

**Recommended Reading / References:**

Baynes J & Dominiczak M. 2004. *Medical Biochemistry*. 2<sup>nd</sup> Ed. Mosby

Gilham B, Papachristodoulou DK, Thomas JH, 2001. *Wills Biochemical Basis of Medicine*

Timberlake, K. 2003. *Chemistry*. 8th Edition. Harper & Row, UK.

McKee T & McKee J, 3<sup>rd</sup> edition. *Biochemistry, The Molecular Basis of Life*, McGraw Hill 2003

Devlin, 2005. *The Textbook of Biochemistry with Clinical Correlations*. Wiley Publishers, USA.

3<sup>rd</sup> ed. Butterworths Heinemann, London, United Kingdom.

Koolman J, Rohm K, 1996. *Colour Atlas of Biochemistry*. Thieme, Stuttgart

Tortora, G.J. & Derrickson, B. 2012, *Principles of Anatomy and Physiology*, 13<sup>th</sup> ed. John Wiley & Sons Inc.

*New Scientist Journal*

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**WEEK-BY-WEEK OUTLINE****TERM 1**

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<b>WEEK 1</b>	Introduction
<b>WEEK 2</b>	Cells, fine structure
<b>WEEK 3</b>	The Saccharides
<b>WEEK 4</b>	Lipids
<b>WEEK 5</b>	Amino acids, polypeptides and proteins
<b>WEEK 6</b>	<b>Mid-term Exam</b>
<b>WEEK 7</b>	Enzymes
<b>WEEK 8</b>	Nucleic acid structure
<b>WEEK 9</b>	DNA Replication and expression, RNA synthesis, protein production
<b>WEEK 10</b>	Micro-organisms part 1: viruses
<b>WEEK 11</b>	Micro-organisms part 2: unicellular organisms
<b>WEEK 12</b>	<b>Final Exam</b>

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## TERM 2

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<b>WEEK 1 &amp; 2</b>	Hormones
<b>WEEK 3</b>	Introduction to metabolism
<b>WEEK 4</b>	Aerobic Glycolysis, Krebs/Citric Acid cycle
<b>WEEK 5</b>	Carbohydrate metabolism
<b>WEEK 6</b>	<b>Mid-term Exam</b>
<b>WEEK 7</b>	Lipid metabolism
<b>WEEK 8</b>	Protein metabolism
<b>WEEK 9</b>	Starvation
<b>WEEK 10</b>	Vitamins
<b>WEEK 11</b>	Free Radical Damage Antioxidants and Ions
<b>WEEK 12</b>	<b><i>Final Exam</i></b>

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## TERM 3

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<b>WEEK 1</b>	Erythropoiesis and erythrocyte metabolism
<b>WEEK 2</b>	Biology and biochemistry of blood clotting
<b>WEEK 3</b>	Liver biochemistry
<b>WEEK 4</b>	Toxicology & Xenobiochemistry
<b>WEEK 5</b>	Kidney biochemistry
<b>WEEK 6</b>	<b>Mid-term Exam</b>
<b>WEEK 7</b>	Biochemistry of muscle action
<b>WEEK 8</b>	Brain and CNS biochemistry
<b>WEEK 9</b>	Chemical Carcinogenesis

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<b>WEEK 10</b>	Obesity
<b>WEEK 11</b>	Biochemistry diagnosis
<b>WEEK 12</b>	<b><i>Final Exam</i></b>

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Please be respectful of your fellow students and arrive on time for classes. Please ensure all mobile phones are turned off prior to the commencement of class.