

UNIT 4 CHEMISTRY 2018 COURSE OUTLINE

| WEEK | TOPIC | LEARNING FOCUS |
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| 1 | Structure and nomenclature of organic compounds | Explain the diversity of carbon compounds. Know the molecular, structural and semi-structural formulae of a variety of organic compounds. Identify different types of isomers. |
| 2 | Structure and nomenclature of organic compounds Chemical Analysis Workshop | Identify the functional groups found in a variety of families of organic compounds. Name a range of organic compounds using systematic nomenclature protocols. Carry out chemical analyses using spectroscopy and chromatography. |
| 3 | Properties and reactions of organic compounds | Explain trends in physical properties of a variety of organic compounds. Describe and write chemical equations for some reactions involving organic compounds. |
| 4 | Properties and reactions of organic compounds | Identify organic reaction pathways for the synthesis of a variety of organic compounds including esters. Calculate percentage yield and atom economy for organic reaction pathways. |
| 5 | Spectroscopic techniques | Describe the principles and applications of infrared and nuclear magnetic resonance spectroscopy. Make qualitative and quantitative interpretations of data from these procedures. |
| 6 | Spectroscopic techniques | Describe the principles and applications of mass spectrometry and make qualitative and quantitative interpretations of mass spectra. Determine molecular structures by utilising a variety of analytical techniques |
| 7 | Chromatography | Describe the principles and applications of a variety of types of chromatography. Make qualitative and quantitative interpretations of chromatograms from these procedures. |
| 8 | Volumetric analysis | Determine the concentration of organic compounds by volumetric analysis, including acid-base and redox titrations. |
| 9 | Structure and bonding in food molecules | Describe the molecular structure, functions and formation of proteins, carbohydrates and lipids. Describe the biological significance, structure and solubility of some vitamins. |
| 10 | Metabolism of food in the human body | Describe the metabolism of a variety of foods in the human body. Describe the structure and function of enzymes and co-enzymes. |
| 11 | The energy content of food | Compare the energy values of carbohydrates, proteins and lipids, and calculate the energy values of foods. Explain the principles of calorimetry and compare solution and bomb calorimetry. |

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| 12 - 13 | Revision and past papers | Revise the Unit 3 & 4 concepts and apply them to past exam questions |
| 14 | Trial Exam | Complete a Unit 3/4 Trial exam under exam conditions. Review the Trial Exam in class. |
| 15 | Revision and past papers | Revise the Unit 3 & 4 concepts and apply them to past exam questions |