

CHEM S7003: Introduction to Organic Chemistry

| Module Details | |
|--------------------------|--|
| Module Code: | CHEM S7003 |
| Full Title: | Introduction to Organic Chemistry APPROVED |
| Valid From:: | Semester 1 - 2018/19 (September 2018) |
| Language of Instruction: | |
| Duration: | 1 Semester |
| Credits:: | 7.5 |
| Module Owner:: | |
| Departments: | Unknown |
| Module Description: | <ul style="list-style-type: none">•To develop an awareness in the student of the significance of organic chemistry in our every day lives.•To introduce the student to the fundamental concepts of organic chemistry so that this knowledge can be applied in subsequent modules, particularly in chemistry, biochemistry, biological and microbiological courses |

| Module Learning Outcome | | |
|--|---|-----------------------------------|
| On successful completion of this module the learner will be able to: | | |
| # | Module Learning Outcome Description | |
| MLO1 | Identify major organic functional groups. | |
| MLO2 | Interpret the physical properties and chemical reactions of various functional groups. | |
| MLO3 | Apply key principles of organic chemistry to practice nomenclature and drawing of organic structures. | |
| MLO4 | Practice safe organic chemistry laboratory skills for routine procedures and straightforward synthesis. | |
| MLO5 | Examine results from scientific practicals and discuss their importance in practical reports | |
| Pre-requisite learning | | |
| Module Recommendations | | |
| This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named DkIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s). | | |
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| Module Indicative Content |
|---|
| Introduction to Organic Chemistry What is organic chemistry? Bonding in organic compounds, Functional groups, IUPAC nomenclature rules. |
| Alkanes, Alkenes & Alkynes Structure and bonding, nomenclature, physical properties, typical reactions. |
| Alcohols and Alkyl halides Nomenclature and structure. Classification of primary, secondary and tertiary alcohols and alkyl halides, Physical properties (hydrogen bonding), Typical reactions. |
| Aldehydes & Ketones Bonding and structure of the carbonyl group, nomenclature, physical properties. Typical reactions of aldehydes and ketones. |
| Carboxylic Acid & Carboxylic Acid Derivatives Nomenclature and structure of the carboxylic acid group, physical properties, typical reactions of carboxylic acids, carboxylic acids derivatives – esters. |
| Amines and Amides Nomenclature and structure. Classification of primary, secondary, tertiary amines. Physical properties and typical reactions. |
| Isomerism Constitutional, conformational and configurational isomers. |
| Practical The students will undertake a selection of practicals from the following topics: Melting points, boiling points, distillation, standard functional group reactions, isomerism using models and synthesis of basic organic compounds. Safety, hygiene and clear, concise report writing will be emphasised at all stages during this practical course. To assist the learning process, the relevant theory will be emphasised during these practicals. |

| Module Assessment | |
|---------------------------|--------|
| Assessment Breakdown | % |
| Course Work | 10.00% |
| Practical | 30.00% |
| Final Examination | 60.00% |
| Module Special Regulation | |
| | |

Assessments

| Full Time On Campus | | | |
|--|--|------------------|-------|
| Course Work | | | |
| Assessment Type | Continuous Assessment | % of Total Mark | 10 |
| Marks Out Of | 0 | Pass Mark | 0 |
| Timing | S1 Week 9 | Learning Outcome | 1,2,3 |
| Duration in minutes | 0 | | |
| Assessment Description | In-class test | | |
| No Project | | | |
| Practical | | | |
| Assessment Type | Practical/Skills Evaluation | % of Total Mark | 30 |
| Marks Out Of | 0 | Pass Mark | 0 |
| Timing | Every Week | Learning Outcome | 4,5 |
| Duration in minutes | 0 | | |
| Assessment Description | A 3-hour weekly practical session will provide the student with the opportunity to back up the theory covered in formal lectures with practical experience. A range of exercises will be set. Each week, students will indicate whether they have successfully completed an exercise and comment appropriately. Small-group working will be involved in both tutorial and practical coursework. Students will be given careful guidance about reading and appropriate use of independent study time. | | |
| Final Examination | | | |
| Assessment Type | Formal Exam | % of Total Mark | 60 |
| Marks Out Of | 0 | Pass Mark | 0 |
| Timing | End-of-Semester | Learning Outcome | 1,2,3 |
| Duration in minutes | 0 | | |
| Assessment Description | End-of-Semester Final Examination | | |
| Reassessment Requirement | | | |
| A repeat examination | | | |
| Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element. | | | |

Module Workload

Workload: Full Time On Campus

| <i>Workload Type</i> | <i>Contact Type</i> | <i>Workload Description</i> | <i>Frequency</i> | <i>Average Weekly Learner Workload</i> | <i>Hours</i> |
|----------------------|---------------------|-----------------------------|------------------|--|--------------|
| Lecture | Contact | No Description | Every Week | 2.00 | 2 |
| Practical | Contact | No Description | Every Week | 3.00 | 3 |
| Tutorial | Contact | No Description | Every Week | 1.00 | 1 |
| Directed Reading | Non Contact | No Description | Every Week | 3.00 | 3 |
| Independent Study | Non Contact | No Description | Every Week | 3.00 | 3 |
| | | | | Total Weekly Learner Workload | 12.00 |
| | | | | Total Weekly Contact Hours | 6.00 |

This module has no Part Time On Campus workload.

Module Resources

Recommended Book Resources

Hart, Craine, Hart. (2007), Organic Chemistry - A short course, 12th. Houghton Mifflin, [ISBN: 13: 9780618590735].
Atkins, R.C., Carey, F.A.. (2007), Organic Chemistry A brief course, 3rd. Mc Graw Hill, [ISBN: 9780071266208].
Stoker, S. (2007), General Organic and Biological Chemistry, 4th. Houghton Mifflin, [ISBN: 9780618606061].
Bettelheim, Brown, March. (2004), Introduction to General Organic and Biochemistry, International Student Edition 7th. Thomson/Brooks/Cole, [ISBN: 0534402119].

Supplementary Book Resources

Schaum. Schaum's outline of theory and problems of organic chemistry, 3rd. Mc Graw-Hill, [ISBN: 9780071341653].
Klein, D. (2011), Organic Chemistry, 1st. Wiley, [ISBN: 9780471756149].
Reingold, D. (2002), Organic Chemistry: an introduction emphasizing biological connections, Houghton Mifflin, [ISBN: 9780618072132].

This module does not have any article/paper resources

Other Resources

Website, Dr Chiara Hanlon. Lecture notes and further resources, DkIT Moodle.
website, <http://www.chemguide.co.uk/index>.

Website, Virtual Textbook of Organic Chemistry,
<http://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm>

Website, Organic Chemistry Review,
<http://mcat-review.org/organic-chemistry.php>

website, <http://www.rsc.org>.

Link, Library Catalogue,
<http://tinyurl.com/pzuztfd>

Link, Library Catalogue,
<http://tinyurl.com/ohunt5c>

Link, Library Catalogue,
<http://tinyurl.com/pbvzwa3>