

<b>DEREE COLLEGE SYLLABUS FOR:</b>		<b>3/0/3</b>
<b>CH 1005 LE AN INTRODUCTION TO THE ORGANIC WORLD</b>		
(Spring 2017)		
<b>PREREQUISITES:</b>	No prerequisites	
<b>CATALOG DESCRIPTION:</b>	An introduction to modern organic and biological structures. An issues based approach that studies biological, environmental, nutritional and material science-related topics via a chemical perspective with an emphasis on the chemistry of living things.	
<b>RATIONALE:</b>	This is a science course that fulfills the <b>Liberal Education Electives</b> natural science requirement. It is designed for students with little or no background in chemistry and aims at giving them an understanding of organic chemistry through the study of the key topics involved in physical processes. Students receive an overview of several applications of the chemistry of carbon as it relates to environmental issues, nutritional topics and the molecular origins of life. The course presents the intimate relationship behind structure and function in the biological world as well as the universality of life on this planet. It helps create well-informed and scientifically literate citizens in today's rapidly changing world.	
<b>LEARNING OUTCOMES:</b>	<p>As a result of taking this course, the student should be able to:</p> <ol style="list-style-type: none"> <li>1. Demonstrate knowledge and understanding of basic chemistry and its development with a focus on the chemistry of water and the chemistry of carbon.</li> <li>2. Explain how organic chemistry forms an integral part of our everyday life beyond its biological context and how it relates to key issues involved in environmental science and materials science.</li> <li>3. Demonstrate understanding of the chemical origins of life and the organic basis of biological chemistry.</li> <li>4. Explain the structure and function of biological molecules.</li> <li>5. Discuss how dietary decisions affect biological processes and identify the hazards involved in modern dietary trends, exercise strategies as well as the basic chemistry behind environmental issues and practices.</li> </ol>	
<b>METHOD OF TEACHING AND LEARNING:</b>	<p>In congruence with the learning and teaching strategy of the college, the following tools are used:</p> <ul style="list-style-type: none"> <li>• Class lectures, interactive learning (class discussions, group work), video presentations, and practical problems solved in class.</li> <li>• Exercises and primary source documents are assigned as homework and are discussed and reviewed in class</li> <li>• Office hours: students are encouraged to make full use of the office hours of their instructor, where they can ask questions, see their exam paper, and/or go over lecture/lab material.</li> <li>• Use of a blackboard site, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources.</li> </ul>	

<b>ASSESSMENT:</b>	<p><b>Summative:</b></p> <table border="1" data-bbox="673 132 1417 317"> <tr> <td>Midterm examination (1 hour): Multiple choice/short answers/essay questions (combination)</td> <td><b>40</b></td> </tr> <tr> <td>Final examination (2 hours): Multiple choice/short answers/essay questions (combination)</td> <td><b>60</b></td> </tr> </table> <p><b>Formative:</b></p> <table border="1" data-bbox="673 380 1417 443"> <tr> <td>Essay questions (as homework assignments)</td> <td><b>0</b></td> </tr> <tr> <td>In-class or online quizzes</td> <td><b>0</b></td> </tr> </table> <p>The formative tests aim to prepare students for the examinations. The midterm examination tests Learning Outcomes 1,2,3,4. The final examination tests Learning Outcomes 3,4,5.</p> <p>The final grade for this module will be determined by averaging all summative assessment grades, based on the predetermined weights for each assessment. Students are not required to resit failed assessments in this module. Failure to pass the module results in module repeat.</p>	Midterm examination (1 hour): Multiple choice/short answers/essay questions (combination)	<b>40</b>	Final examination (2 hours): Multiple choice/short answers/essay questions (combination)	<b>60</b>	Essay questions (as homework assignments)	<b>0</b>	In-class or online quizzes	<b>0</b>
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In-class or online quizzes	<b>0</b>								
<b>INDICATIVE READING:</b>	<p><b>Required Reading:</b></p> <ul style="list-style-type: none"> <li>Smith J. Principles of General, Organic and Biological Chemistry, 2<sup>nd</sup> edition 2014, McGraw Hill, ISBN 9780073511191</li> </ul> <p><b>Recommended Readings:</b></p> <ul style="list-style-type: none"> <li>American Chemical Society. Chemistry in Context, Applying Chemistry to Society, 8<sup>th</sup> edition, McGraw Hill ISBN 9780073522975</li> <li>Malone, Leo J. and Dolter, Theodore. Basic Concepts of Chemistry, 8th Edition, Wiley, 2009, ISBN: 978-0-470-39890-6</li> </ul>								
<b>INDICATIVE MATERIAL:</b> (e.g. audiovisual, digital material, etc.)	<p><b>REQUIRED MATERIAL:</b> N/A</p> <p><b>RECOMMENDED MATERIAL:</b> N/A</p>								
<b>COMMUNICATION REQUIREMENTS:</b>	Verbal skills using academic/professional English								
<b>SOFTWARE REQUIREMENTS:</b>	Word, Powerpoint, Excel								
<b>WWW RESOURCES:</b>	<ul style="list-style-type: none"> <li><a href="http://www.sciam.com">www.sciam.com</a>: Scientific American</li> <li><a href="http://www.newscientist.com">www.newscientist.com</a>: New Scientist</li> <li><a href="http://www.iupac.org">www.iupac.org</a> International Union of Pure and Applied Chemistry</li> <li><a href="http://www.acs.org">www.acs.org</a> American Chemical Society</li> </ul>								
<b>INDICATIVE CONTENT:</b>	<ol style="list-style-type: none"> <li>Introduction       <ul style="list-style-type: none"> <li>The Scope of Organic and Biological Chemistry</li> </ul> </li> <li>Essentials of the Atomic World       <ul style="list-style-type: none"> <li>Atoms and Elements</li> </ul> </li> </ol>								

- Matter and Energy
  - Chemical Bonding
  - Chemical Reactions
3. Water for life
    - The nature of water and hydrogen bonding
    - Solutions
  4. An Ode to Carbon: An Introduction to Organic Molecules
    - Hydrocarbons
    - Complex Organic Molecules
  5. Chemistry and the Environment
    - The Carbon Cycle
    - From Plants to plastics
    - Methane and Other Greenhouse gasses
  6. How to build Life: Biological Chemistry
    - Carbohydrates
    - Fats and lipids
    - Proteins and enzymes
    - DNA and the nucleic acids
  7. You are what you eat? Nutrition
    - From Field to fork
    - Energy from food
    - Exercise