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| Course Title | Histology - Embryology I | | | | |
| Course Code | DES110 | | | | |
| Course Type | Compulsory | | | | |
| Level | Bachelor of Dentistry | | | | |
| Year / Semester | 1st year / 1st semester | | | | |
| Teacher's Name | TBA | | | | |
| ECTS | 5 | Lectures / week | 2 hrs / 13 weeks + exam week | Laboratories / week | 3 hrs / 13 weeks |
| Course Purpose and Objectives | The Purpose and the Objectives of this introductory Course are:<br>To provide students with an introduction to the disciplines of human Histology and Embryology and it will serve as a connective foundation upon which, courses as Anatomy-Histology-Embryology-Physiology and Biochemistry in Dental sciences will be based. The organization and the embryological development of the human body, from cells to tissues and to organs formation, and the relationship between their structure & function is emphasized and discussed. Different cell types and function of cellular organelles are analyzed. Histological pathways contributing to the normal function of the cells and the physiological tissues and organs will also be discussed with extension to their pathophysiological status and function related to Histology. Detailed study of the histology of all human tissues, organs and systems is a focus, along with an introduction to Histological terminology. Detailed study in Embryology from the evolution from the fertilized Zygote to the differentiation and formation of all human organs and systems and their birth defects and their pathology is a focus in Embryology, along with an introduction to the Stem Cells and to the Embryological terminology. Learning activities will provide students with the foundational knowledge and skills required to undertake further study of body systems and to demonstrate knowledge of normal and abnormal histological and embryological pathological structures and birth defects.<br>The structure and function of the human body will be performed on the microscopic models and tissue samples by light and electron microscope and in molecular levels, as well as with the 3D level in functional Embryological development and birth defects and with 3-D high fidelity models and Computer Assisting Learning-CAL. | | | | |

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<tr><td>Learning Outcomes</td><td colspan="3">Upon successful completion of this course students should be able to demonstrate the understanding of the normal microstructure and evolution of the human body and:<ul><li>Describe and demonstrate an understanding of microscopic organization under diverse types of microscope, the relationships of the cells , the extracellular matrix and the tissues constituting the organs and systems</li><li>Describe the structure and function of the cells and the cellular organelles by their morphological characteristics</li><li>Explain the organization of the human body from cells to tissues, to organs and systems</li><li>Describe the basic cellular structure and function of all human tissues comprising organs and systems</li><li>Apply basic histological and embryological terminology</li><li>Recognize of normal and abnormal structure and function of the human body</li><li>Discuss the relation of cell death and apoptotic cellular pathways in histological and embryological pathological conditions and the procedures taking place during Cellular aging</li><li>Relate the normal embryological development occurring into the human body from fertilization with tissues, organs and systems development</li><li>Discuss the pathological mechanisms during embryological development and the birth defects occurring into the developing human body</li></ul></td></tr>
<tr><td>Prerequisites</td><td>None</td><td>Co-requisites</td><td>None</td></tr>
<tr><td>Course Content</td><td colspan="3">In that regard, students will familiarize themselves with the following Histological and Embryological Modules of the Human Body:<ul><li>Microstructural organization and development of the Cells and Tissue Types, Cellular Organelles and Extracellular Matrix</li><li>Microstructural changes in Tissue Regeneration and in Cellular aging</li><li>Teratogenic factors, Syndromes and Congenital abnormalities of all organs and systems</li><li>Fundamentals in Embryology, Fertilization, Blastocyst formation and Implantation and Embryological Terminology</li><li>Morphological organization and development of the Epithelial, the Connective and the Adipose Tissue</li><li>Morphological organization and development of the Cartilage and Bone</li><li>Development and Birth Defects of the Axial Skeleton and the total Skeletal System and related Birth Defects</li><li>Morphological organization and development of the Muscle Tissue and the Limbs and related Birth Defects</li></ul></td></tr>
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| | • Morphological organization and development of the Respiratory System and related Birth Defects<br>• Morphological organization and development of the Cardiovascular System and related Birth Defects<br>• Morphological organization and development of the Gastrointestinal System and related Birth Defect<br>• Morphological organization and development of the Pharyngeal Apparatus and related Birth Defects<br>• Morphological organization and development of the Urinary System and related Birth Defects<br>• Morphological organization and development of the Male Reproductive System and its Birth Defects<br>• Morphological organization and development of the Female Reproductive System and related Birth Defects<br>• Morphological organization and development of the Integument System and related Birth Defects<br>• Morphological organization and development of the Exocrine & Endocrine System and related Birth Defects<br>• Morphological organization and development of the Blood and the Homopoietic System<br>• Morphological organization and development of the Vessels, Angiogenesis, Vasculogenesis and related Birth Defects<br>• Morphological organization and development of the Immune System and related Birth Defects<br>• Morphological organization and development of the Nervous System and related Birth Defects |
| Teaching Methodology | Face-to-face. Lectures, Microscopical Laboratories in Histology and Embryology, Computer Assisted Learning-CAL and 3D in Embryology Laboratories, Quizzes, Case Presentations, Group Presentations of Laboratory Reports and Assignments, Literature review sessions. Small Group Discussions, Virtual case scenarios, |
| Bibliography | **Histology:**<br>Junqueira's Basic Histology: Text & Atlas; Antony L. Mescher, PhD, Mc Graw Hill Education LANGE, 14th Edition; 2015, New York, Chicago, San Francisco, Lisbon, London, Madrid, Mexico City, Milan, New Delhi, San Juan, Seoul, Singapore, Sydney, Toronto, International Edition; ISBN 978-0071842709<br>Netter's Essential Histology; William Ovalle,Patrick C. Nahirney, Illustrations by Frank H. Netter; Elsevier Saunders Philadelphia, Second Edition, 2013 ISBN 978-1-4557-0631-0<br>**Embryology:**<br>Before we are born. Essentials of Embryology and Birth Defects; Keith L. Moore, T.V.N. Persaud, Mark G. Torcha; 9th Edition; 2015; Philadelphia, Elsevier Saunders Edition; ISBN 978-0323313377 |

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| | Langman's Medical Embryology.T. W. Sadler.Wolters Kluwer Health/Lippincott Williams & Wilkinson,.Philadelphia, Baltimore, New York, London, Buenos Aires, Hong Kong, Sydney, Tokyo. 12th Edition-International Edition, 2012. ISBN 978-1-4511-4451-1 |
| Assessment | Final Examination 60%<br>Lab Report / Oral presentations 30%<br>Participation and attendance 10%<br>Total 100% |
| Language | English |