

Course title	Reproduction, Growth and Development				
Course code	GEMD-204				
Course type	Required				
Level	Undergraduate				
Year / Semester	Year 2, Semester 4				
Teacher's name	Dionysios Vaidakis & George Tanteles				
ECTS	13	Teaching Periods per Week			
		Large Group Learning	Small Group Learning	Laboratories & Skills	Clinical Practice
		6	6	5	6
Course purpose and objectives	<p>The aim of the course is to enable the students to develop a well-rounded understanding of human reproduction, with an emphasis on the underlying basic sciences, and apply this to key concepts of gynaecological and obstetric clinical practice. It also aims to help the students understand the scientific basis of growth and development in children and adolescents and the impact of genetic and infectious diseases.</p> <p>Overall, the student will, by the end of the course, be able to:</p> <ul style="list-style-type: none"> • Describe in detail the physiology of menstruation from menarche to menopause and provide an outline of disorders and principles of management • Discuss methods of contraception and be able to advise on the most appropriate in a specific clinical context • Describe the key anatomical structures of the female reproductive system with an emphasis on how these relate to the physiology of reproduction and its disorders • Describe in detail the physiological changes in pregnancy and how the pregnancy is monitored • Describe in detail the stages of labour and discuss the principles of management • Describe in detail the physiological changes in the puerperium and outline complications and their management • Understand and describe the normal stages of development and growth in childhood, outline their assessment and discuss how these may be disturbed • Understand the impact of genetic disorders in childhood with an emphasis on the application of genetic science to clinical practice • Outline the presentation and assessment of infectious diseases in childhood and explain the role of immunisation in their prevention • Describe the physiology of puberty, its assessment and how it can be disturbed 				

	<ul style="list-style-type: none"> Describe drugs affecting the reproductive system (drugs used for contraception, hormone replacement therapy, drugs affecting uterus, drugs to treat erectile dysfunction).
<p>Learning outcomes</p>	<p>At the end of the course the student will be able to:</p> <p><i>Knowledge</i></p> <ol style="list-style-type: none"> Briefly outline the mechanisms underlying menarche and list factors that can disturb this process including the aetiology of amenorrhoea Outline the key anatomical features of the female external genitalia, vagina, uterus and ovaries Correlate changes in cervical histology with development of cancer and outline prevention strategies Describe in detail the menstrual cycle correlating hormonal variation to folliculogenesis, ovulation and the state of the endometrium Outline the pathophysiological basis of menstrual irregularities and outline the basis for their treatment Give a differential diagnosis of irregular vaginal bleeding Describe the physiology of the menopause Discuss the symptoms of the menopause, outline a relevant treatment strategy and describe the pharmacology of hormone replacement therapy Outline the main methods of contraception, the basis for their use and any contraindications Define infertility and its types and discuss its global prevalence Describe the pharmacology of drugs used in infertility Outline the key steps in the investigation of an infertile couple Describe the aetiology of male factor infertility Describe ovulation disorders and outline their classification Describe the causes of tubal factor infertility Outline the management strategy for infertility Outline the elements of pre and periconceptual care Outline the early complications of pregnancy including ectopic pregnancy and outline the causes of early pregnancy loss Describe the physiological changes in the various systems during pregnancy Discuss the metabolic changes during pregnancy Outline the development of the placenta and describe its physiological function Describe the bony pelvis and changes during pregnancy Outline the key components of antenatal care including the use of ultrasound in the first, second and third trimester Outline methods for aneuploidy screening including non-invasive prenatal testing Outline techniques for prenatal diagnosis including chorionic villous sampling, amniocentesis and non-invasive prenatal testing Discuss the social issues related to teenage pregnancy Describe the anatomy of the pelvic floor and the pelvic ligaments and changes during labour

28. Define preterm delivery, discuss its causes and briefly outline its management
29. Define the diagnosis of labour
30. Describe the stages of labour and their physiological basis
31. Discuss the use of medication in labour
32. Outline the complications that can occur in the different stages of labour and their management
33. Outline the physiological changes that take place in the puerperium
34. Outline the potential complications in the puerperium and their management
35. Describe the physiology of breast feeding
36. Describe considerations for prescribing in pregnancy and during breastfeeding
37. Discuss the advantages of breast feeding for the neonate
38. Discuss the neonatal adaptations to extrauterine life
39. Define the physiological parameters in the neonate
40. Describe the key developmental milestones up to the age of five
41. Discuss how these milestones can be assessed
42. Outline the different types of developmental delay in children
43. Outline the causes of developmental delay
44. Discuss how children with developmental delay can be supported
45. Define autism spectrum disorders and outline their aetiology
46. Discuss the overall impact of genetic conditions on child health and discuss regional variations
47. List the clinical features that are routinely assessed during the clinical examination of a dysmorphic child
48. Describe the different modes of Mendelian inheritance
49. Describe mitochondrial inheritance
50. Outline the mechanisms of genomic imprinting using Prader Willi and Angelman syndromes as examples
51. Explain how different types of genetic variation cause disease and correlate with the mode of inheritance
52. Using Down syndrome as an example, describe how aneuploidies arise
53. Outline the principles of genetic counselling and discuss occurrence and recurrence risks
54. List common infectious diseases in childhood and discuss their epidemiology
55. Outline the clinical approach to the febrile child and discuss differential diagnosis
56. Outline the elements of innate immunity
57. Discuss adaptive immunity and the role of T lymphocytes, B lymphocytes and antibodies
58. Describe how vaccines stimulate the immune system and discuss the different vaccination types that exist
59. Outline the basic childhood vaccination schedule
60. Discuss the global impact of vaccinations initiatives and emerging threats as a result of reduced uptake

	<p>61. Outline the risks of COVID-19 infection in the paediatric population and the rollout of vaccination in children</p> <p>62. Discuss the significance of a balanced nutrition in children</p> <p>63. Outline the pathways that regulate growth in children</p> <p>64. Outline the causes of failure to gain weight in infants and children and discuss the approach to their management</p> <p>65. Describe the stages of puberty in males and females</p> <p>66. Outline the causes of abnormal puberty/ pubertal dysregulation</p> <p>67. Discuss growth patterns in adolescence</p> <p><i>Skills</i></p> <p>68. Take a gynaecological history</p> <p>69. Perform a gynaecological examination on a manikin including a bivalve examination</p> <p>70. Discuss the choice of an appropriate method of contraception</p> <p>71. Take an infertility history</p> <p>72. Take an obstetric history</p> <p>73. Perform an examination of the pregnant abdomen using a manikin</p> <p>74. Outline the key steps of the neonatal examination</p> <p>75. Take a developmental history from parents</p> <p>76. Take a history relevant to a suspected genetic condition</p> <p>77. Construct and interpret a genogram</p> <p>78. Take a focused history from a parent of a child with a febrile illness</p> <p>79. Discuss childhood vaccinations with parents and obtain informed consent</p> <p>80. Use growth charts appropriately to monitor growth and interpret data and patterns of growth</p> <p><i>Professional competencies</i></p> <p>81. Discuss the issue of access to contraception on a global scale</p> <p>82. Discuss legal and ethical aspects of assisted reproductive technologies</p> <p>83. Discuss ethical and legal issues of termination of pregnancy</p> <p>84. Consider the global burden of pregnancy complications</p> <p>85. Define sensitivity, specificity and positive and negative predictive values and apply to screening tests carried out in pregnancy</p> <p>86. Discuss the global burden of complications of labour and delivery and suggest mitigation strategies</p> <p>87. Explain the role of the midwife in antenatal care</p> <p>88. Consider the patient safety implications of a home birth</p> <p>89. Discuss the global burden of paediatric infectious diseases</p> <p>90. Describe the principles of informed consent</p> <p>91. Discuss the extent and implications of childhood malnutrition globally and consider strategies for mitigation</p>		
Prerequisites	None	Required	None
Course content	<ul style="list-style-type: none"> • Menstruation from menarche to menopause • Methods of contraception 		

	<ul style="list-style-type: none"> • Infertility and its management • Pregnancy, foetal and maternal physiology and antenatal care • The physiology of labour and the puerperium and their management • Communication and clinical skills in gynaecological and obstetric practice • Neonatal adaptations to extrauterine life and principles of neonatal assessment • Genetic disorders in childhood • Childhood infections and the role of immunisation • Growth in childhood and adolescence and puberty • The assessment of development and growth in childhood and adolescence 																																										
<p>Teaching methodology</p>	<p>Lectures – normally two face-to-face, three on-line p/week</p> <p>Tutorials – two case-based learning small group sessions, two expert-led class discussions/debates</p> <p>Clinical and communication skills sessions</p> <p>Flipped classroom activities</p> <p>Community and/or hospital visits each week, relating to the case of the week</p> <p>Student centred learning/self-study</p>																																										
<p>Bibliography</p>	<p>Required textbooks/reading</p> <table border="1"> <thead> <tr> <th>Authors</th> <th>Title</th> <th>Edition</th> <th>Publisher</th> <th>Year</th> <th>ISBN</th> </tr> </thead> <tbody> <tr> <td>Hall and Hall</td> <td>Guyton and Hall Textbook of Medical Physiology</td> <td>14th</td> <td>Elsevier</td> <td>2020</td> <td>9780323597128</td> </tr> <tr> <td>Moore, Dalley and Agur</td> <td>Clinically Oriented Anatomy</td> <td>8th</td> <td>Wolters Kluwer</td> <td>2017</td> <td>978-1496347213</td> </tr> <tr> <td>Firth and Hurst</td> <td>Oxford Desk Reference: Clinical Genetics and Genomics</td> <td>2nd</td> <td>Oxford University press</td> <td>2017</td> <td>9780199557509</td> </tr> </tbody> </table> <p>Recommended textbooks/reading</p> <table border="1"> <thead> <tr> <th>Authors</th> <th>Title</th> <th>Edition</th> <th>Publisher</th> <th>Year</th> <th>ISBN</th> </tr> </thead> <tbody> <tr> <td>Impey and Child</td> <td>Obstetrics and Gynaecology</td> <td>5th</td> <td>Wiley-Blackwell</td> <td>2017</td> <td>978-1-119-01079-1</td> </tr> <tr> <td>Narcdante and Kliegman</td> <td>Nelson Essentials of Pediatrics</td> <td>8th</td> <td>Elsevier</td> <td>2018</td> <td>9780323511452</td> </tr> </tbody> </table>	Authors	Title	Edition	Publisher	Year	ISBN	Hall and Hall	Guyton and Hall Textbook of Medical Physiology	14 th	Elsevier	2020	9780323597128	Moore, Dalley and Agur	Clinically Oriented Anatomy	8 th	Wolters Kluwer	2017	978-1496347213	Firth and Hurst	Oxford Desk Reference: Clinical Genetics and Genomics	2 nd	Oxford University press	2017	9780199557509	Authors	Title	Edition	Publisher	Year	ISBN	Impey and Child	Obstetrics and Gynaecology	5 th	Wiley-Blackwell	2017	978-1-119-01079-1	Narcdante and Kliegman	Nelson Essentials of Pediatrics	8 th	Elsevier	2018	9780323511452
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Assessment	The course will be assessed at the end of Semester 2 with a Summative Final Examination consisting of Single Best Answer MCQs (SBAs) and Short Answer Questions (SAQs).
Language	English