



## *Syllabus*

# *Medical Embryology and Teratology - 96212*

*Last update 20-07-2020*

*HU Credits:* 2.5

*Responsible Department:* Medicine

*Academic year:* 0

*Semester:* 2nd Semester

*Teaching Languages:* Hebrew

*Campus:* Ein Karem

*Course/Module Coordinator:* Prof. Chaya Kalcheim; Prof. Asher Ornoy is the coordinator for the Teratology part

*Coordinator Email:* [kalcheim@cc.huji.ac.il](mailto:kalcheim@cc.huji.ac.il)

*Coordinator Office Hours:* To be determined by phone

*Teaching Staff:*

Prof Chaya Kalcheim,  
Prof Avihu Klar,  
Prof Asher Ornoy,  
Dr. Karen Meir

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Course/Module description:

the course will encompass the different stages of embryonic development. From fertilization to gastrulation, and development of the main body systems. The relationship between anatomy and generation of anatomical structures will be stressed.

The student will also receive the basics of embryonic malformations and teratogens.

Course/Module aims:

- 1- Transmit the principles accounting for the generation of complexity during embryonic development.
- 2- Set the basis for understanding anatomy, histology and physiology

Learning outcomes - On successful completion of this module, students should be able to:

- 1- Know the principles governing development of body tissues and organs.
- 2- Understand the relations between the final Anatomy and the way to reach definitive structures.
- 3- In the introduction to Teratology (8 hours) the students will hear about the main teratogenic mechanisms and the effects of maternal diseases, drugs, addictive substances, physical agents including ionizing irradiation and maternal infections during pregnancy on the human embryo and fetus.

Attendance requirements(%):

None

Teaching arrangement and method of instruction: Frontal lectures

Course/Module Content:

- 1- Introduction to Developmental Biology- From stem cells to the differentiated state
- 2- Fertilization to bilaminar embryo, the first two weeks
- 3- Gastrulation and formation of the trilaminar embryo
- 4- Placental development
- 5- Mesoderm development- lateral plate mesoderm, intraembryonic coelom, somatic and visceral layers, intermediate mesoderm, paraxial mesoderm. Development of muscles (axial and appendicular), vertebrae and dermis
- 6- Cardiovascular development- CV malformations.
- 7- Craniofacial complex- Branchial and pharyngeal arches
- 8- Ectodermal placodes (eye and ear development)

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- 9-Digestive system
  - 10-Respiratory system
  - 11-Central nervous system including malformations
  - 12-Peripheral nervous system. The neural crest
  - 13-The genito-urinary systems
  - 14-Principles of Teratology
  - 15-Fetal Ultrasound

Required Reading:

Scott F. Gilbert - *Developmental Biology*, 9th edition  
Larsen's *Human Embryology*, 4th edition  
Moore & Persaud - *The developing Human*, 8th edition  
Several review papers in teratology

Additional Reading Material:

Articles to be named

*Course/Module evaluation:*

End of year written/oral examination 100 %  
Presentation 0 %  
Participation in Tutorials 0 %  
Project work 0 %  
Assignments 0 %  
Reports 0 %  
Research project 0 %  
Quizzes 0 %  
Other 0 %

Additional information: