

## REQUIREMENTS

**Semmelweis University, Faculty of General Medicine – single, long-cycle medical training programme**

**Name of the host institution (and any contributing institutions):**

Semmelweis University, Department of Anatomy, Histology and Embryology

**Name of the subject:**

**in English:** The embryology of congenital heart defects and its clinical aspects

**in German:** Embryologie, klinische Aspekte und Behandlung von angeborener Herzfehler

**Credit value: 2**

**Semester: 1.**

*(as defined in the curriculum)*

<b>Total number of classes per week:</b>	2x45min	<b>lectures:</b>	<b>practical lessons:</b>	<b>seminars:</b> 2x45min
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**Type of subject:**    **compulsory**            **optional**            **elective**

(PLEASE UNDERLINE AS APPLICABLE)

**Academic year:2023/24**

**Language of instruction, for optional or elective subjects: english**

**Course code:**

*(In the case of a new subject, this cell is filled in by the Dean's Office, following approval)*

**Course coordinator:** Dr. Alán Alpár, Dr. Ildikó Bódi

**Place of work, phone number:** Semmelweis University, Department of Anatomy, Histology and Embryology, 1/4591500/53609

**Position:** Dr. Alán Alpár: full professor, Dr. Ildikó Bódi: assistant professor

**Date and number of habilitation:** Dr. Alán Alpár: Karolinska Institut, 2012 (Semmelweis University, 2014); Dr. Ildikó Bódi:-

**Objectives of the course and its place in the medical curriculum:**

The number of children born with congenital heart defects is one of the leading groups of congenital fetal anomalies worldwide and in Hungary. Their prevalence at birth exceeds 1%. One of the aims of this course is to highlight the basic developmental relationships, the understanding of which is essential for the implementation of diagnostic and surgical solutions for congenital heart defects in infants and children. The course will bridge the gap between theoretical and clinical education, providing an understanding of the relevance of developmental and anatomical sciences in practice.

**Place of instruction (address of lecture hall or seminar room etc.):**

Semmelweis University, Institute of Anatomy, Histology and Developmental Biology, 1094 Budapest, Tűzoltó street 58.

Bibliothek

**Competencies acquired through the completion of the course:**

The course will provide students with a comprehensive developmental and anatomical context-based understanding of the development of congenital cardiac malformations in infants and children, and their diagnostic and surgical solutions.

**Prerequisites for course registration and completion:**

Macroscopic anatomy II.  
Microscopic anatomy and evolution II.

The subject can be taken from year III.

**Conditions for concurrent course registration and permission thereof in the case of a multi-semester subject:**

**Student headcount conditions for starting the course (minimum, maximum) and method of student selection:**

min. 10 persons, max. 50 persons

**Detailed course description:**

1. The fight for life, or the bumpy road from Alfred Blalock's first blue baby operations to modern paediatric cardiac surgery (Dr. Zsolt Prodán) 09.05.
2. Development of the heart (Dr. Ildikó Bódi) 09.12.
3. Molecular mechanisms in the development of the heart (Dr. Krisztina H.-Minkó) 09.19.
4. Developmental background of septal defects, surgical solutions. Interactive dissection demonstration from the dissecting physician's point of view (Dr. Cao Chun and Dr. Tamás Ruttkay) 09.26.
5. Genetic background of cardiac malformations (Dr. Anna Lengyel) 10.03.
6. Developmental, anatomical and morphological aspects of cardiac malformations and their pathological approach (Dr. Ildikó Bódi and Dr. Tamás Marton) 10.10.
7. Fetal circulation and birth (Dr. Ildikó Bódi and Dr. Miklós Szabó) 10.17.
8. Monitoring cardiac malformations during pre- and postnatal life (Dr. Ladányi Anikó és Dr. Ablonczy László) 10.24.
9. Three dimensional modelling of cardiac defects (Dr. János Imre Barabás)  
Normal and abnormal development and anatomy of heart valves (Dr. Zoltán Hajdú) 10.31.
10. Manifestations of valvular defects in young adults and their complex surgical treatment (Dr. Miklós Pólos and Dr. István Hartyánszky) 11.07.
11. Development and anatomy of the conduction system and the treatment and developmental aspects of cardiac arrhythmias (Dr. Ildikó Bódi and Dr. László Környei) 11.14.
12. Developmental background and surgical solutions of transposition of infantile and paediatric large arteries and coronary arteries and tetralogy of Fallot (Dr. Zsolt Nagy) 11.21.
13. Transplantation and artificial heart treatment in childhood (Dr. László Ablonczy) 11.28.

**Dr. Ildikó Bódi assistant professor – course director, lecturer**

Dr. Alán Alpár full professor – medical anatomist, professional supervision

**Related subjects due to interdisciplinary fields (both compulsory and elective) and potential overlaps between subjects:**

<p>Macroscopic anatomy II.  Microscopic anatomy and evolution II.  Developmental biology II.  Cardiology, cardiac surgery, angiology and vascular surgery  Paediatrics  Pathology II.</p>
<p><b>Attendance requirements; conditions under which students can make up for absences and the method of absence justification:</b></p> <p>The number of absences in a semester must not exceed 25% of the reason for the seminars.  There is no possibility to make up an absence.</p>
<p><b>Form of assessment in the study period:</b>  (including the number, topics and scheduling of oral and written tests, their share in the overall evaluation, make-up tests and improvement tests)</p> <p>There is no mid-term control.</p>
<p><b>Number and type of assignments for individual work and the deadline for submission:</b></p> <p>-</p>
<p><b>Requirements to obtain the teacher's signature:</b>  Checking the roll, recording absence and attendance. In case of absence, medical certificate or acceptable excuse. Attendance at least 75% of the seminars is required for the end-of-semester signature.</p>
<p><b>Type of assessment:</b> (<i>comprehensive examination, end-term examination, term-grade, term-grade on a three-grade rating scale, coursework project, no examination</i>)</p> <p>You are required to write a two-page typed summary on a topic of your choice from the seminars.</p>
<p><b>Examination requirements:</b>  (<i>list of examination topics, subject areas of tests / examinations, lists of mandatory parameters, figures, concepts and calculations, practical skills and the optional topics for exam-equivalent coursework projects, their criteria of completion and assessment</i>)</p> <p>A sound theoretical knowledge of the detailed subject matter of the course and of the material in the projected, electronically delivered presentations is required.</p>
<p><b>Method and type of grading:</b>  (<i>Share of theoretical and practical examinations in the overall evaluation. Inclusion of the results of the end-of-term assessment. Possibilities of and conditions for offered grades.</i>)</p> <p>In the seminars, each topic will be marked with 5 focus questions, which are expected to be answered in a 2-3 page essay.</p>
<p><b>List of course books, textbooks, study aids and literature facilitating the acquisition of knowledge to complete the course and included in the assessment, precisely indicating which requirement each item is related to (e.g., topic by topic) as well as a list of important technical and other applicable study aids:</b></p> <p>Heart Development and Regeneration, Edit: Nadia Rosenthal, Richard Hardvey, ISBN: 9780123813336</p> <p>Cardiac Development, Edit.: Margaret Loewy Kirby, ISBN: 9780195178197</p>

Development of Cardiovascular Systems - Molecules to Organisms, Edit: Waren W. Burggren and Bradley B. Keller, ISBN: 9780521560726

Steding's and Virágh's Scanning Electron Microscopy Atlas of the Developing Human Heart, Edit: Roelof-Jan OostraGerd StedingWout H. LamersAntoon F. M. Moorman ISBN: 9780387369426

**Signature of habilitated instructor (course coordinator) announcing the course:**

**Signature of the director of the host institution:**

**Date of submission:**