Exchange programme Vrije Universiteit

Vrije Universiteit Amsterdam - Exchange programme Vrije Universiteit - 2020-2021

Human Anatomy and Physiology

Course Code	AB_1197
Credits	6
Period	P1
Course Level	200
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	prof. dr. B.J.J.M. Brundel
Examiner	prof. dr. B.J.J.M. Brundel
Teaching Staff	dr. P. Koolwijk, prof. dr. C.A.C. Ottenheijm, dr. D.W.D. Kuster, F.E. Buma
Teaching method(s)	Lecture, Study Group, Practical

Course Objective

The aim of this course is to acquire basic knowledge in the field of the anatomy (construction) and physiology (function) of different organ systems in the human body. The construction and function of the cardiovascular
system, respiratory system and kidney are central themes in this course.

After the course the student is able to:
• recognize different organ systems of the human body
• to designate the construction of the various organ systems at various levels: tissue (histology), organs and organ systems.
• comprehend the function of the different parts within various organ systems
• describe the mechanism of action of the various organs also by means of mathematical modeling
• comprehend the role of anatomy and physiology of various organs for body function during health and disease
• associate and motivate pathophysiological problems and anatomical abnormalities with basic cellular and biochemical processes
• make use of the anatomical nomenclature
In addition, it contributes to the learning objectives within the theme ”scientific thinking and research”.

Course Content

During the course the student is made familiar with the anatomical and physiological terminology, which is used in the daily practice in the clinic. During the ’cutting room’ practicals, human preparation are used to study the construction and topography of various components (organs and tissues) of the body. The aim of the physiology practicals is to provide the student insight into non-invasive techniques he / she can use to investigate (patho-) physiological processes in humans,

including cardiovascular, respiratory and renal diseases). In addition, work-group sessions are organized to translate the (patho-) physiological processes to function or dysfunction of the human body, by studying patient cases.
Effort
The cardiovascular, respiratory and renal system play an important role in maintaining the environment within the human body, especially during exercise. Exercise is of key importance to regulate the homeostasis of all systems in both healthy and sick people.
The heart and blood circulation module discusses the anatomy of the heart and blood vessels, heart function, the regulation of the blood circulation.
The respiration and exercise module involves the development and anatomy of the respiratory organs, how respiration takes place, and the supply of oxygen throughout the body. Furthermore, it is discussed how aerobic endurance affects respiration.
Finally, within the kidney and homeostasis module, the construction, function and the importance of the kidney for ion management and the maintenance of the 'environmental interior' are highlighted (also by applying mathmatical modeling).
Themes:
1 Heart and circulation (blood pressure regulation)
2 Lungs and exercise (breathing)
3 Kidney and volume regulation ((ion) homeostasis)
4 Integration

Teaching Methods

30 hours lectures
8 hours workgroup meetings
8 hours practical course in cutting room
8 hours practical course physiology

NOTE: presence at workgroup meetings and practical course is OBLIGATED

Method of Assessment

Practical course: pre-exam accomplished
Tasks workgroup meetings (20%)
Final written exam (80%)

Note: all tests should have a score of at least 5,5/accomplished.

Literature

Obligated:
- Martini, Nath&Bartolomew: Fundamentals of Anatomy and Physiology 9e druk (2012) of 10e druk (2015); Pearson - Benjamin Cummings; ISBN nr:

09780321761033 (9th)
- Syllabus (werkgroepen en practica)

Target Audience

Compulsory course for second-year BSc Biomedical Sciences students.