

Number	Topic	Annotation	Mentor
1	Short bowel disease	Pathophysiological mechanisms. Clinical signs and their basis, current classification, principles of nutritional support	MUDr. Eva Krauzová, PhD eva.krauzova@fnkv.cz
2	Insulin resistance	Pathophysiological mechanisms of insulin resistance in pertinent organs (the ominous octet)	MUDr. Eva Krauzová, PhD eva.krauzova@fnkv.cz
3	Endothelial dysfunction syndrome, causes and consequences	A student or a group of students will work on a selected topic on 8 - 10 pages. The students elaborate the topic as a chapter into a textbook. The text will be based on review articles (not textbooks) and must have at least five citations. Case report (s), own pictures and diagrams are welcome.	MUDr. Klára Bernášková, CSc kbernas@lf3.cuni.cz
4	Metabolic consequences of cancer	A student or a group of students will work on a selected topic on 8 - 10 pages. The students elaborate the topic as a chapter into a textbook. The text will be based on review articles (not textbooks) and must have at least five citations. Case report (s), own pictures and diagrams are welcome.	MUDr. Klára Bernášková, CSc kbernas@lf3.cuni.cz
5	Water poisoning, CSWS and SIADH	A student or a group of students will work on a selected topic on 8 - 10 pages. The students elaborate the topic as a chapter into a textbook. The text will be based on review articles (not textbooks) and must have at least five citations. Case report (s), own pictures and diagrams are welcome.	MUDr. Klára Bernášková, CSc kbernas@lf3.cuni.cz
6	Catabolic states, causes and consequences	A student or a group of students will work on a selected topic on 8 - 10 pages. The students elaborate the topic as a chapter into a textbook. The text will be based on review articles (not textbooks) and must have at least five citations. Case report (s), own pictures and diagrams are welcome.	MUDr. Klára Bernášková, CSc kbernas@lf3.cuni.cz
7	Consequences of chronic inflammation	A student or a group of students will work on a selected topic on 8 - 10 pages. The students elaborate the topic as a chapter into a textbook. The text will be based on review articles (not textbooks) and must have at least five citations. Case report (s), own pictures and diagrams are welcome.	MUDr. Klára Bernášková, CSc kbernas@lf3.cuni.cz
8	Pathophysiological aspects of diabetic ketoacidosis	History – life, therapy, and death of type 1 diabetic patient in era before the discovery of insulin. Epidemiology (prevalence, mortality). Metabolic effects of insulin and glucagon. Principle of ketogenesis. Development of diabetic ketoacidosis in type 1 diabetes mellitus (why does it not occur in type 2 diabetes mellitus?). Principle of treatment of diabetic ketoacidosis. Ketogenic diet and type 1 diabetes mellitus (pros and cons).	MUDr. Kateřina Westlake, PhD katerina.westlake@gmail.com

9	Causes and mechanisms of increased mortality in obstructive sleep apnoe syndrome. Critical evaluation of 2 seminal studies with contradictory results from the pathophysiological point of view.	Pathophysiological mechanisms linking obstructive sleep apnea syndrome (OSA) with increased cardiovascular mortality. Pathophysiological basis of OSA therapy and its impact on mortality - comparison of 2 studies with contradictory results (Martinez-Garcia x SAVE study provided below). Design of both studies, inclusion criteria, results, discussion - what are basic differences between both studies. Why studies found opposite results? MARTÍNEZ-GARCÍA et al., 2012. Cardiovascular mortality in obstructive sleep apnea in the elderly: role of long-term continuous positive airway pressure treatment: a prospective observational study. Am J Respir Crit Care Med. 186(9), 909–16. ISSN 1535-4970. https://www.atsjournals.org/doi/10.1164/rccm.201203-0448OC MCEVOY et al., 2016. CPAP for prevention of cardiovascular events in obstructive sleep apnea. New England Journal of Medicine. ISSN 1533-4406. https://www.nejm.org/doi/10.1056/NEJMoa1606599	MUDr. Kateřina Westlake, PhD katerina.westlake@gmail.com
10	Sleep disordered breathing, with emphasis on obstructive sleep apnea	Sleep physiology, overview of sleep disorders. Regulation of respiration in sleep, pathogenesis of obstructive sleep apnea, critical closing pressure (Pcrit), pathophysiological consequences of sleep apnea.	MUDr. Zuzana Vimmerová-Lattová, Ph.D. zuzana.vimmerova-lattova@lf3.cuni.cz
11	Nobel prizes associated with insulin	Summary and explanation of key experiments leading to Nobel prizes in Medicine and physiology associated with insulin (Banting/Macleod 1921, Sanger 1958, Yalow 1977) from the pathophysiological perspective.	Doc. MUDr. Jan Polák, PhD jan.polak@lf3.cuni.cz
12	Nobel prizes in Medicine and physiology in last 40 years	Summary and explanation of key experiments leading to Nobel prizes in Medicine and physiology in last 20 years from the pathophysiological perspective. Students should select 1-3 Nobelists according to the size of the work group - from the given period.	Doc. MUDr. Jan Polák, PhD jan.polak@lf3.cuni.cz
13	Summaries of Scientific Papers	Student will summarize 1 – 3 (depends on the extensiveness of the article) recent original scientific papers. The paper topics will be selected after discussion with the mentor. Articles will be summarized according to the mentor's instructions.	MUDr. Otakar Raška, PhD. raskaota@gmail.com
14	Brain death	Definition, causes, consequences, legal and ethical aspects	MUDr. Zuzana Vimmerová-Lattová, Ph.D. zuzana.vimmerova-lattova@lf3.cuni.cz

15	Disorders of consciousness	Overview of disorders of consciousness, classification, etiology, tests, scales	MUDr. Zuzana Vimmerová-Lattová, Ph.D. zuzana.vimmerova-lattova@lf3.cuni.cz
16	Hypoxia	Definitions, types, causes, consequences, examples (case studies)	MUDr. Zuzana Vimmerová-Lattová, Ph.D. zuzana.vimmerova-lattova@lf3.cuni.cz
17	Obstructive and restrictive lung diseases	Definitions, pathophysiology, causes, consequences, examples (case studies)	MUDr. Zuzana Vimmerová-Lattová, Ph.D. zuzana.vimmerova-lattova@lf3.cuni
18	Micro and macrovascular complications of hypertension, hemodynamic consequences.	Work will be based on original scientific articles and reviews.	MUDr. Teodora Víchová - teodoravi@yahoo.com
19	ECG changes in myocardial ischemia.	Pathophysiology, subendocardial and transmural ischemia, evolution. The work must contain citations of reviews and original scientific articles.	MUDr. Teodora Víchová - teodoravi@yahoo.com