

SYLLABUS OF EDUCATIONAL COMPONENT
NUTRITION SCIENCE

Specialty: **221 «Dentistry»**

Educational and professional program: **Dentistry**

Component code in the educational program: **EC 31**

Level of higher education: **second (master's)**

Form of education: **(full-time)**

Year of study: **3**

Semester(s): **I (autumn), II (spring)**

Type of educational component: **elective**

Academic year: **2026-2027**

Volume: **3 ECTS credits (90 hours)**

Classes: **lectures, practical lessons**

Final control: **credit**

Prerequisites: **CC 7, CC 12, CC 13, CC 25, CC 27**

Department/division: **Department of Hygiene and Ecology**, 4, Nauky Ave., Building A, 5th floor

Head of educational component: Assoc. Prof. Merkulova Tetyana Valentynivna,

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Page of the educational component in the KhNMU Distance Learning System (Moodle):

<https://distance.kntmu.edu.ua/course/view.php?id=248>

DESCRIPTION OF EDUCATIONAL COMPONENT

COURSE OBJECTIVE: formation of a system of knowledge, skills, practical actions, professional skills and target competencies among education seekers, as well as a scientific worldview of a future specialist in the field of knowledge 22 "Healthcare", specialty 221 "Dentistry", regarding the basics of rational nutrition for a healthy person, the peculiarities of children's nutrition, methods of assessing individual nutritional status and identifying the causes of its violations, nutritional characteristics of basic food products, as well as the influence of nutritional factors on the condition of hard tissues of teeth, periodontium and oral cavity organs.

LEARNING OUTCOMES:

- explain the basics of a healthy diet for a healthy person and the mechanisms of the influence of nutrients on the general condition of the body and oral cavity tissue;
- characterize the features of nutrition in childhood, adolescence and adulthood, as well as in various physiological and pathological conditions that affect dental health;
- assess the patient's individual nutritional status and determine the main causes of its violation;
- analyze the nutritional properties of basic foods, including from the perspective of their impact on dental health;
- choose relevant methods of preventing nutritionally dependent and dentally significant diseases;
- formulate and present the results of their own research and conclusions on nutrition for a professional and non-professional audience

CONTENT OF EDUCATIONAL COMPONENT**List of lecture topics (10 hours):**

1. Nutritional fundamentals of rational human nutrition.
2. Physiological role of basic nutrients. Violations of nutritional, vitamin and mineral status of the body and their impact on dental tissues, periodontal and oral mucosa.
3. Nutritional characteristics of basic food products.
4. Nutrition of certain categories of the population. Nutritional aspects of the prevention of caries and other dental diseases. Nutritional prevention of oncological diseases.
5. Nutritional and metabolic disorders in dental and general somatic diseases (propaedeutics of dietetics).

List of practical topics (20 hours):

1. Nutritional fundamentals of rational nutrition. Nutrition and dental health. Alternative and non-traditional types of nutrition, their impact on the condition of hard tissues of teeth, periodontium and oral mucosa
2. Assessment of individual nutritional status of the organism.
3. Nutritional characteristics of milk and dairy products. Their importance in the mineralization of hard tissues of teeth, maintenance of calcium-phosphorus balance. Bioethical and medical problems associated with the consumption of dairy products by the population of Ukraine.
4. Nutritional characteristics of meat and meat products, eggs, fish, seafood.
5. Nutritional characteristics of bread, bakery, cereal products, legumes and other grain processing products.
6. Nutritional characteristics of confectionery products. Honey and beekeeping products in nutrition, their nutritional and biological value, medicinal and health-improving properties.
7. Nutritional characteristics of vegetables, fruits, berries, nuts, mushrooms, wild edible plants.
8. Soft drinks and their impact on dental health.
9. Violations of vitamin and mineral status of the body, their dental manifestations. Bioethical aspects of dietary restrictions, including due to social, economic and religious factors.
10. Nutritional and metabolic disorders in dental and general somatic diseases (propraeudics of dietetics). Nutritional diseases and their prevention.

List of topics for student independent work (60 hours)

1. The role of nutrition in maintaining dental health. The relationship between nutrition, the state of hard tissues of teeth, periodontium and salivation.
2. Alimentary diseases and their dental manifestations. Caries, gingivitis, periodontitis, glossitis, cheilitis as a consequence of nutritional disorders.
3. Modern concepts of rational and functional nutrition. Fundamentals of nutrigenomics and nutrigenetics in dentistry.
4. Methods of assessing individual nutritional status, analysis of clinical and biochemical indicators, interpretation of results.
5. Violations of vitamin and mineral status: clinical manifestations in the oral cavity. Deficiency of calcium, fluorine, vitamins C, D, group B.
6. The role of proteins, fats, carbohydrates, including in the formation of hard tissues of teeth and the mucous membrane of the oral cavity. Balance of macronutrients in dental prevention.
7. Nutritional characteristics of products that affect the acid-base balance of saliva. Their role in the prevention of caries and dental erosion.
8. Safe nutrition: food additives, preservatives, dyes and their possible impact on dental health. Bioethical aspects of consumption.
9. Food products for special and therapeutic and prophylactic purposes. Functional products, probiotics, vitamin-mineral complexes.
10. Eating habits of the modern population of Ukraine and their dental consequences. Analysis of the consumption of sugars, sweet drinks, snacks, energy drinks.
11. Nutritional aspects of nutrition during orthodontic, orthopedic and surgical treatment in dentistry. Recommendations for diet in postoperative conditions.
12. Prevention of dental diseases by means of nutrition in children of different ages. Formation of eating behavior, child's diet.
13. Changes in nutritional status in endocrine and metabolic disorders. Diabetes, obesity, osteopenia, metabolic syndrome.
14. Bioethical and social aspects of nutrition. Ethical problems of vegetarianism, food industry, access to quality food, the influence of advertising on eating behavior.

15. Genetically modified foods, new technologies in nutrition, potential risks and benefits for the body.

The SIW is aimed at deepening and consolidating theoretical knowledge obtained during classroom training and contributes to the formation of professional competencies. The results of the SIW are subject to control and are included in the final knowledge control.

Consultations: online, with prior registration on the course page in the Distance Learning System.

Teaching methods: lecture, exercises and practical work, solving situational tasks and cases, standardized patient method.

ASSESSMENT

Current educational activities (CEA). Assessment of the success of education seekers is carried out in accordance with the Instructions for assessing the educational activities of higher education seekers at KhNMU (<https://knmu.edu.ua/documents/normatyvni-dokumenty-navchalnogo-proczesu/>). The grade for a practical or final lesson is from 2 to 5 points. Submitting assignments late for unwarranted reasons entails a reduction in the grade in accordance with the percentage of delay in time from the time of completing the assignment. Assignments are checked within 24 hours. Grades are posted in the electronic journal. Unsatisfactory grades are worked out in accordance with the Regulations on the procedure for working out academic classes by students of KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).

At the end of the semester, the semester average grade is converted into a multi-point grade (70 – 120 points) in accordance with Table 1 of the Assessment Instructions (see above). The arithmetic average of the CEA for both semesters constitutes the total learning activity (TLA).

Individual tasks (IT) are evaluated up to 10 points.

Final control. Credit.

Discipline grade (DG). Passed.

Appealing the results of the final control is carried out in accordance with the procedure established at KhNMU. (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf).

EDUCATION COMPONENT POLICIES

Recommendations for course work: actively participate in all forms of work in classes, devote time every day to independent work and preparation for classes, ask questions during classes, attend consultations, submit assignments on time, and complete all forms of control.

Attendance at classes. Attendance at lectures and practical classes is mandatory. The uniform during offline classes is a white medical gown. If you are more than 5 minutes late, you may not be allowed to attend the class. Missed classes are made up in accordance with the Regulations on the procedure for students of KhNMU to complete classes (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).

Academic integrity. KhNMU has a zero tolerance policy towards academic dishonesty. Any violation of the principles of academic integrity entails liability in accordance with the procedure established at KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf).

The use of electronic gadgets and artificial intelligence tools is allowed only with the permission of the teacher.

Policy for individuals with special educational needs. Applicants with special educational needs should contact a teacher to develop an individual educational trajectory.

Teacher response time: 24 hours.

Technical requirements for course work:

- access to a computer, laptop, tablet or smartphone
- corporate Google account with your own photo

- skills in working with Google Workspace (Google Meet, Docs, Sheets, Slides, Forms) and Moodle
- *other department requirements*

Technical support: ACS (ev.shevtsov@knmu.edu.ua), Google (tehotdelknmu@gmail.com), Moodle (al.korol@knmu.edu.ua)

RECOMMENDED SOURCES

1. Pavlotska L. F. Et al. Nutrition [Text] : textbook / Ministry of Education and Science of Ukraine. - Kharkiv : World of Books, 2023. - 527 p.
2. Fundamentals of Physiology and Nutritional Hygiene: Textbook: Textbook [Electronic resource] / [edited by O.V. Onoprienko, O.M. Onoprienko]; Ministry of Education and Science of Ukraine, Cherkasy. State Technological University. – Cherkasy : ChDTU, 2021. – 138 p. – Title from the title screen. Textbook. – Cherkasy, 2021. -p
3. Hygiene and Ecology : textbook / [V. G. Bardov, S. T. Omelchuk, N. V. Merezhkina et al.] ; ed. by V. G. Bardov. – Vinnytsia : Nova Knyga, 2020. – 472 p..
4. Dr. Rajput, Kumkum. Food, Nutrition and Hygiene: Improving Diets and Nutrition. India: Independently published, 2023. – 239 p.

Additional

1. Kaprelyants, Leonid Viktorovich. Biological chemistry with the basics of nutrition physiology: a course of lectures / L. V. Kaprelyants. — Ed. 4th, revised and supplemented. — Kharkiv: Fact, 2023. — 228 p.
2. Health nutrition: a manual / P. O. Karpenko, N. V. Prytulska, M. F. Kravchenko and others; edited by P. O. Karpenko. – Kyiv: Kyiv. National Trade and Economics University, 2019. — 628 p.
3. An unbiased, sustainable, evidence-informed Universal Food Guide: a timely template for national food guides — Dean E., Xu J., Jones A.Y.M. etc. (2024). *Nutrition Journal*, 23:126.
4. Digging deep for nutrients and metabolites derived from high dietary protein intake and their potential functions in metabolic health — Brennan L., Nilaweera K.N. (2024). *Nutrition Research Reviews*.

Head of Department of Hygiene and Ecology

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