



INTEGRATED ACADEMIC
STUDY OF PHARMACY
THIRD YEAR OF STUDY

2023/2024.

NUTRITIONAL SUPPLEMENTS

Course unit:

NUTRITIONAL SUPPLEMENTS

The course is evaluated with 5 ECTS. There are 3 classes of active teaching per week (1 class of lectures, 1 class of seminar and 1 classes of work in a small group).

TEACHERS AND ASSOCIATES:

	Name	Email	Title
1.	Nela Đonovic	ndjonovic@medf.kg.ac.rs	Full Professor
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7.	Marija Sekulić	msekulic82@gmail.com	Assistant Professor
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9.	Jasmina Sretenović	drj.sretenovic@gmail.com	Assistant Professor
10.	Marina Nikolić		Teaching fellow
11.	Maja Murić		Teaching fellow
12.	Nikoleta Janićijević	nikoleta.janicijevic@gmail.com	Teaching assistant
13.	Jovan Milosavljević		Teaching assistant

COURSE STRUCTURE:

Modul	Name of the course module	Weeks	Teaching Lectures (weekly)	Practice (weekly)	Seminars (weekly)	Teacher – in charge
1	Physiological basis of application of dietary supplements	4	1	1	1	Prof. dr. Vladimir Živković
2	Nutritional supplements	11	1	1	1	Asst. prof. dr. Dalibor Stajić
		15	15	15	15	Σ 15+15+15=45

ASSESSMENT:

The grade is equivalent to the number of points earned (see table). Points are earned as follows:

PRE-EXAM ACTIVITIES:

-Activity during class: In this way, the student can gain up to 30 points by answering 2 exam questions from that week of class in the class of work in a small group, and in accordance with the demonstrated knowledge, he receives 0-2 points.

- Seminar work: 20 points.

FINAL EXAM: Final test: 50 points.

МОДУЛ		MAXIMUM POINTS			Σ
		activity during classes	Seminary paper	Final exam	
1	Physiological basis of application of dietary supplements	8			
2	Nutritional supplements	22			
Σ		30	20	50	100

SEMINARY PAPER (an individual written report): In this way, the student can gain up to 20 points.

Seminary paper are written in accordance with the instructions:

1. papers should be written in English
2. font type: Times New Roman,
3. recommended number of words: 2000 words or 14000 characters
4. spacing: 1.5, alignment: both sides
5. for literature use scientific works, textbooks and other professional literature,
6. arrange references according to the Vancouver citation style
7. title page contains:
 - the name of the faculty and university,
 - school year and date of writing the seminar paper,
 - the title of the work,
 - name and surname of the student, index number
8. send the paper in electronic form to higijena@medf.kg.ac.rs.

The final grade is formed as follows:

In order to pass the course, the student must obtain a minimum of 51 points, pass all modules and the final exam, and have the required number of points in the seminar paper.

In order to pass the course, the student must:

1. obtain more than 50% of the points in the module (more than 50% of the points provided for the teaching activity in each module),
2. obtain more than 50% points in the seminar work,
3. pass the final exam (final test), i.e. have more than 50% correct answers.

The method of evaluation based on the points obtained is shown in the following table:

Total number of points	Description	Grade
0-50	Not passed	5
51-60	Six	6
61-70	Seven	7
71-80	Eight	8
81-90	Nine	9
91-100	Ten	10

FINAL EVALUATION

**PRE-EXAM
ACTIVITIES**

**ACTIVITY DURING
CLASSES
0-30 POINTS**

**SEMINARY PAPER
0-2 POINTS**

FINAL EXAM

**FINAL TEST
0-50 POINTS**

LITERATURE:

Module	The name of the textbook	Authors	Publisher	Library
Physiological basis of application of dietary supplements	Textbook of Medical Physiology, 14th Edition	Hall J. Guyton & Hall	International Edition	
	Oxford Handbook of Nutrition and Dietetics, 3rd Edition	Webster-Gandy J, Madden A, Holdsworth M.	Oxford University Press. 2020.	
	Food Chemistry	Belitz H.	Berlin: Springer. 2009. Elsevier Science. 2020	
Nutritional supplements	Food toxicology	Helferich W, Winter CK.	CRC Press London	
	Introduction to Human Nutrition, 2th Edition	Gibney MJ, Lanham-New SA, Cassidy A, Vorster HH.	Wiley Blackwell Publ., 2009	

All lectures are available on the website of the Faculty of Medical Sciences: www.medf.kg.ac.rs

**THE PROGRAM:
FIRST MODULE: PHYSIOLOGICAL BASIS OF THE APPLICATION OF DIETARY
SUPPLEMENTS**

TEACHING UNIT 1 (I WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Distribution of body water in the body. Water and electrolyte balance in the body. Mechanisms of secretion and absorption of water and mineral substances.	Disorders of secretion and absorption of water and minerals in the gastrointestinal system.

TEACHING UNIT 2 (II WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
The specifics of vitamin metabolism and the role of the gastrointestinal system in these processes.	Disorders of vitamin metabolism: hypo- and hypervitaminosis.

TEACHING UNIT 3 (III WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Mechanisms of digestion and absorption of proteins and amino acids.	Malabsorption syndrome.

TEACHING UNIT 4 (IV WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Mechanisms of digestion and absorption of fats and fatty acids.	Lipid and lipoprotein metabolism in obesity.

SECOND MODULE: DIETARY SUPPLEMENTS

TEACHING UNIT 5 (V WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Importance of nutritional supplementation. Development of nutritional supplementation and application of dietary supplements. Basic definitions and divisions of diet products.	Basic definitions and divisions of diet products. ISO 17025 standard.

TEACHING UNIT 6 (VI WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
The role and place of the pharmacist in the modern application of diet products. Legal national and international regulation of dietary products.	Methods of analysis of diet products. Energy value of dietary products.

TEACHING UNIT 7 (VII WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Potential impact of diet products on the human body. Possible positive and negative effects.	Sampling, storage and transport of diet products.

TEACHING UNIT 8 (VIII WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Diet products.	Diet products. Analyzes of samples.

TEACHING UNIT 9 (IX WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Dietary supplements. Declaring. Health and nutrition claims.	Dietary supplements. Declaring. Health and nutrition claims. Analyzes of samples.

TEACHING UNIT 10 (X WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Carbohydrates as dietary supplements. Proteins and amino acids as dietary supplements.	Carbohydrates as dietary supplements. Proteins and amino acids as dietary supplements. Analyzes of samples.

TEACHING UNIT 11 (XI WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Fats and fatty acids as dietary supplements.	Fats and fatty acids as dietary supplements. Analyzes of samples.

TEACHING UNIT 12 (XII WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Vitamins as dietary supplements.	Vitamins as dietary supplements. Analyzes of samples.

TEACHING UNIT 13 (XIII WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Minerals as dietary supplements.	Minerals as dietary supplements. Analyzes of samples.

TEACHING UNIT 14 (XIV WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Dietary products with or from plants. Other dietary supplements. Packaging for packing dietary products.	Dietary products with or from plants. Other dietary supplements. Packaging for packing dietary products. Analyzes of samples.

TEACHING UNIT 15 (XV WEEK):

Teaching lectures + Seminar (2 classes)	Practical classe (1 classe)
Recommendations for the use of dietary products in the framework of diet prophylaxis and diet therapy.	Recommendations for the use of dietary products in the framework of diet prophylaxis and diet therapy. Examples of dietary products on the market.

LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	typ	name of the lesson	teacher
1	1	L/S	Distribution of body water in the body. Water and electrolyte balance in the body. Mechanisms of secretion and absorption of water and mineral substances.	Assoc. prof. Ivan Srejšović Prof. Vladimir Źivković
		P	Disorders of secretion and absorption of water and minerals in the gastrointestinal system.	Asst. prof. Jasmina Sretenović Maja Murić Marina Nikolić Jovan Milosavljević
	2	L/S	The specifics of vitamin metabolism and the role of the gastrointestinal system in these processes.	Prof. Vladimir Źivković Assoc. prof. Ivan Srejšović
		P	Disorders of vitamin metabolism: hypo- and hypervitaminosis.	Maja Murić Marina Nikolić Jovan Milosavljević Asst. prof. Jasmina Sretenović
	3	L/S	Mechanisms of digestion and absorption of proteins and amino acids.	Asst. prof. dr Jovana Joksimović Jović Assoc. prof. Ivan Srejšović
		P	Malabsorption syndrome.	Asst. prof. Jasmina Sretenović Marina Nikolić Maja Murić Jovan Milosavljević
	4	L/S	Mechanisms of digestion and absorption of fats and fatty acids.	Asst. prof. dr Jovana Joksimović Jović Prof. dr. Vladimir Źivković
		P	Lipid and lipoprotein metabolism in obesity.	Maja Murić Marina Nikolić Jovan Milosavljević Asst. prof. Jasmina Sretenović

LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	typ	name of the lesson	teacher
2	5	L/S	Importance of nutritional supplementation. Development of nutritional supplementation and application of dietary supplements. Basic definitions and divisions of dietary products.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić
		P	Basic definitions and divisions of dietary products. ISO 17025 standard.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević
	6	L/S	The role and place of the pharmacist in the modern application of dietary products. Legal national and international regulation of dietary products	Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Asst. prof. Marija Sekulić Prof dr. Nela Đonović
		P	Methods of analysis of dietary products. Energy value of dietary products.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević
	7	L/S	Potential impact of dietary products on the human body. Possible positive and negative effects.	Prof dr. Nela Đonović Asst. prof. Dalibor Stajić Asst. prof. Dušan Tomović Asst. prof. Marija Sekulić Dr Nikoleta Janićijević
		P	Sampling, storage and transport of dietary products.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević

LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	typ	name of the lesson	teacher
	8	L/S	Diet products.	Asst. prof. Marija Sekulić Prof dr. Nela Đonović Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić
		P	Diet products. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević
	9	L/S	Dietary supplements. Declaring. Health and nutrition claims.	Asst. prof. Dalibor Stajić Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović
P		Dietary supplements. Declaring. Health and nutrition claims. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević	
2	10	L/S	Carbohydrates as dietary supplements. Proteins and amino acids as dietary supplements.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić
		P	Carbohydrates as dietary supplements. Proteins and amino acids as dietary supplements. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević

LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	typ	name of the lesson	teacher
	11	L/S	Fats and fatty acids as dietary supplements.	Asst. prof. Dalibor Stajić Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović
		P	Fats and fatty acids as dietary supplements. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević
	12	L/S	Vitamins as dietary supplements.	Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Prof dr. Nela Đonović Asst. prof. Dalibor Stajić
		P	Vitamins as dietary supplements. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević
	13	L/S	Minerals as dietary supplements.	Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Prof dr. Nela Đonović Asst. prof. Marija Sekulić
		P	Minerals as dietary supplements. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević

LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	typ	name of the lesson	teacher
2	14	L/S	Dietary products with or from plants. Other dietary supplements. Packaging for packing dietary products.	Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Prof dr. Nela Đonović
		P	Dietary products with or from plants. Other dietary supplements. Packaging for packing dietary products. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević
	15	L/S	Recommendations for the use of dietary products in the framework of diet prophylaxis and diet therapy.	Asst. prof. Dalibor Stajić Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović
		P	Recommendations for the use of dietary products in the framework of diet prophylaxis and diet therapy. Examples of dietary products on the market.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić Dr Nikoleta Janićijević
		SP	SEMINARY PAPER	
		EX	FINAL EXAM (Final test) EXAM (June term)	