



INTEGRATED ACADEMIC  
STUDY OF PHARMACY  
THIRD YEAR OF STUDY

2024/2025.

**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
2.	Vladimir Živković	vladimirziv@gmail.com	Full Professor
3.	Ivan Srejović	ivan_srejovic@hotmail.com	Associate Professor
4.	Jovana Joksimović Jović	jovana_joksimovic@yahoo.com	Assistant Professor
5.	Dušan Lj. Tomović	dusantomovic@medf.kg.ac.rs	Assistant Professor

6.	Marija Sekulić	msekulic82@gmail.com	Associate Professor
7.	Dalibor Stajić	stajicdalibor@yahoo.com	Assistant Professor
8.	Jasmina Sretenović	drj.sretenovic@gmail.com	Assistant Professor

**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	$\Sigma 15+15+15=45$

**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			
		activity during classes	Seminary paper	Final exam	$\Sigma$
1	Physiological basis of application of dietary supplements	8			
2	Nutritional supplements	22			

	$\Sigma$	30	20	50	<b>100</b>
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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](mailto: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	<b>5</b>
51-60	<b>Six</b>	<b>6</b>
61-70	<b>Seven</b>	<b>7</b>
71-80	<b>Eight</b>	<b>8</b>
81-90	<b>Nine</b>	<b>9</b>
91-100	<b>Ten</b>	<b>10</b>

# **FINAL EVALUATION**

**PRE-EXAM  
ACTIVITIES**

**ACTIVITY DURING  
CLASSES  
0-30 POINTS**

**SEMINARY PAPER  
0-20 POINTS**

**FINAL EXAM**

**FINAL TEST  
0-50 POINTS**

## LITERATURE:

<b>Module</b>	<b>The name of the textbook</b>	<b>Authors</b>	<b>Publisher</b>	<b>Library</b>
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](http://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 class (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 class (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 class (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 class (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 class (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 class (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 class (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.

## **SCHEDULE OF LECTURES & PRACTICE**

**WEDNESDAY**

**11.30-13.45**

Hall at the  
pediatric clinic

# 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 Srežović Prof. Vladimir Živković Asst. prof. dr Jovana Joksimović Jović Asst. prof. Jasmina Sretenović	
		P	Disorders of secretion and absorption of water and minerals in the gastrointestinal system.	Assoc. prof. Ivan Srežović Prof. Vladimir Živković Asst. prof. dr Jovana Joksimović Jović Asst. prof. Jasmina Sretenović	
	2	L/S	The specifics of vitamin metabolism and the role of the gastrointestinal system in these processes.	Prof. Vladimir Živković Assoc. prof. Ivan Srežović Asst. prof. dr Jovana Joksimović Jović Asst. prof. Jasmina Sretenović	
		P	Disorders of vitamin metabolism: hypo- and hypervitaminosis.	Prof. Vladimir Živković Assoc. prof. Ivan Srežović Asst. prof. dr Jovana Joksimović Jović Asst. prof. Jasmina Sretenović	
	3	L/S	Mechanisms of digestion and absorption of proteins and amino acids.	Asst. prof. dr Jovana Joksimović Jović Prof. Vladimir Živković Assoc. prof. Ivan Srežović Asst. prof. Jasmina Sretenović	
		P	Malabsorption syndrome.	Asst. prof. dr Jovana Joksimović Jović Prof. Vladimir Živković Assoc. prof. Ivan Srežović Asst. prof. Jasmina Sretenović	
	4	L/S	Mechanisms of digestion and absorption of fats and fatty acids.	Asst. prof. dr Jovana Joksimović Jović Prof. Vladimir Živković Assoc. prof. Ivan Srežović Asst. prof. Jasmina Sretenović	
		P	Lipid and lipoprotein metabolism in obesity.	Asst. prof. dr Jovana Joksimović Jović Prof. Vladimir Živković Assoc. prof. Ivan Srežović Asst. prof. Jasmina Sretenović	
	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. proff. Dalibor Stajić

# LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	Typ	name of the lesson	teacher
2		<b>P</b>	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
	6	<b>L/S</b>	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
		<b>P</b>	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
	7	<b>L/S</b>	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
		<b>P</b>	Sampling, storage and transport of dietary products.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić
	8	<b>L/S</b>	Diet products.	Asst. prof. Marija Sekulić Prof dr. Nela Đonović Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić
		<b>P</b>	Diet products. Analyzes of samples.	Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović Asst. prof. Dalibor Stajić
	9	<b>L/S</b>	Dietary supplements. Declaring. Health and nutrition claims.	Asst. prof. Dalibor Stajić Prof dr. Nela Đonović Asst. prof. Marija Sekulić Asst. prof. Dušan Tomović
		<b>P</b>	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

# LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	Typ	name of the lesson	teacher	
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	
	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	
	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	
	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	
	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

## LESSON SCHEDULE FOR THE SUBJECT NUTRITIONAL SUPPLEMENTS

module	week	Typ	name of the lesson	teacher
		<b>P</b>	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
	15	<b>L/S</b>	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
		<b>P</b>	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
		<b>SP</b>	SEMINARY PAPER	
		<b>EX</b>	FINAL EXAM (Final test) EXAM (June term)	