SYLLABUS

DEPARTMENT OF NUTRITION & DIETETICS

ALEXANDER TECHNOLOGICAL EDUCATIONAL INSTITUTE, THESSALONIKI, 2013

HEAD OF THE DEPARTMENT

PROF. ELISABETH VARDAKA

1st Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
1	General & Inorganic Chemistry	277-10110	6	7	G.K.M.
	General & Inorganic Chemistry - Theory	277-101101	3	5	
	General & Inorganic Chemistry - Laboratory	277-101102	3	2	
2	Human Biology	277-10120	4	5	G.K.M.
3	Food Microbiology & Hygiene	277-10130	5	5	G.K.M.
	Food Microbiology & Hygiene - Theory	277-101301	3	4	
	Food Microbiology & Hygiene - Laboratory	277-101302	2	1	
4	Informatics	277-10140	5	5	G.K.M.
	Informatics - Theory	277-101401	2	3	
	Informatics - Laboratory	277-101402	3	2	
5	Food Science	277-10150	3	4	S.K.M.
	Food Science - *Theory*	277-101501	2	3	
	Food Science - *Laboratory*	277-101502	1	1	
6	Introduction to Nutrition Science & Dietetics	277-10160	3	4	S.K.M.
	Introduction to Nutrition Science & Dietetics - Theory	277-101601	2	3	
	Introduction to Nutrition Science & Dietetics - Laboratory	277-101602	1	1	
2nd Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
1	Analytical Chemistry & Instrumental Analysis	277-20110	6	6	G.K.M.
	Analytical Chemistry & Instrumental Analysis - *Theory*	277-201101	3	4	
	Analytical Chemistry & Instrumental Analysis - *Laboratory*	277-201102	3	2	
2	Seminar	277-20120	3	3	G.K.M.
	Seminar - *Theory*	277-201201	1	2	
	Seminar - *Laboratory*	277-201202	2	1	
3	Human Anatomy & Physiology	277-20130	6	7	S.K.M.
	Human Anatomy & Physiology - *Theory*	277-201301	3	5	
	Human Anatomy & Physiology - *Laboratory*	277-201302	3	2	
4	Organic Chemistry	277-20140	5	7	G.K.M.
	Organic Chemistry - *Theory*	277-201401	3	5	
	Organic Chemistry - *Laboratory*	277-201402	2	2	
5	Foreign Language Nutrition Terminology	277-20150	3	4	G.K.M.
6	Food Toxicology	277-20160	3	3	S.K.M.
	Food Toxicology - *Theory*	277-201601	2	2	
	Food Toxicology - *Laboratory*	277-201602	1	1	
3nd Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
1	Ethics in Nutrition and Dietetics (Ethics for Nutritionists-Dieticians)	277-30110	3	4	S.K.M.
2	Nosology	277-30120	3	4	S.K.M.
3	Nutrition Physiology (Physiology of Alimentation)	277-30130	3	4	S.K.M.
	Nutrition Physiology - *Theory*	277-301301	2	3	
	Nutrition Physiology - *Laboratory*	277-301302	1	1	
4	Introduction in Biochemistry	277-30140	7	7	G.K.M.
	Introduction in Biochemistry - *Theory*	277-301401	4	5	
	Introduction in Biochemistry - *Laboratory*	277-301402	3	2	
5	Food Additives & Legislation	277-30150	3	4	S.K.M.
	Food Additives & Legislation - *Theory*	277-301501	2	3	
	Food Additives & Legislation - *Laboratory*	277-301502	1	1	
6	Food Chemistry & Analysis	277-30160	6	7	S.K.M.
	Food Chemistry & Analysis - *Theory*	277-301601	3	5	
	Food Chemistry & Analysis - *Laboratory*	277-301602	3	2	
	Foreign Language		3	-	O. M.

4th Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
1	Biochemistry of Macronutrient Metabolism	277-40110	6	7	G.K.M.
	Biochemistry of Macronutrient Metabolism - *Theory*	277-401101	3	5	
	Biochemistry of Macronutrient Metabolism - *Laboratory*	277-401102	3	2	
2	Food Production Principles (Principles in Food Preparation)	277-40120	6	6	S.K.M.
	Food Production Principles - *Theory*	277-401201	3	4	
	Food Production Principles - *Laboratory*	277-401202	3	2	
3	Food & Environment	277-40130	2	3	S.K.M.
4	Nutrition during Pregnancy & Childhood	277-40140	6	7	S.M.
	Nutrition during Pregnancy & Childhood - *Theory*	277-401401	3	5	
	Nutrition during Pregnancy & Childhood - *Laboratory*	277-401402	3	2	
5	Principles of Clinical Nutrition	277-40150	6	7	S.M.
	Principles of Clinical Nutrition - *Theory*	277-401501	3	5	
	Principles of Clinical Nutrition - *Laboratory*	277-401502	3	2	
	Interpersonal Relations		3	-	O. M.
5th Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
1	Food Technology & Quality Control	277-50110	6	7	S.K.M.
	Food Technology & Quality Control - *Theory*	277-501101	3	5	
	Food Technology & Quality Control - *Laboratory*	277-501102	3	2	
2	Nutrition during Adulthood and Older Age	277-50120	6	7	S.M.
	Nutrition during Adulthood and Older Age - *Theory*	277-501201	3	5	
	Nutrition during Adulthood and Older Age - *Laboratory*	277-501202	3	2	
3	Introduction in Biostatistics	277-50130	6	7	G.K.M.
	Introduction in Biostatistics - *Theory*	277-501301	3	4	
	Introduction in Biostatistics - *Laboratory*	277-501302	3	3	
4	Nutrition Informatics	277-50140	4	5	S.M.
	Nutrition Informatics - *Theory*	277-501401	2	3	
	Nutrition Informatics - *Laboratory*	277-501402	2	2	
5A	Entrepreneurship	277-50150	3	4	B.E.L.Hs.M.
5B	Nutrition & Exercise	277-50160	3	4	S.M.
	Micronutrient Metabolism		3	-	O. M.
6th Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
1	Nutritional Counseling	277-60110	5	5	S.M.
	Nutritional Counseling - *Theory*	277-601101	3	3	
	Nutritional Counseling - *Laboratory*	277-601102	2	2	
2	Sports & Nutrition	277-60120	6	7	S.M.
	Nutrition & Exercise - *Theory*	277-601201	3	5	
	Nutrition & Exercise - *Laboratory*	277-601202	3	2	
3	Nutritional Management of Clinical Conditions I	277-60130	6	7	S.M.
	Nutritional Management of Clinical Conditions I - *Theory*	277-601301	3	4	
	Nutritional Management of Clinical Conditions I-*Laboratory*	277-601302	3	3	
4	Nutrition Education – Health Education	277-60140	2	4	S.M.
5A	Psychology & Nutrition	277-60150	4	4	S.M.
	Psychology & Nutrition - *Theory*	277-601501	3	3	
	Psychology & Nutrition - *Laboratory*	277-601502	1	1	
5B	Novel Foods	277-60160	4	4	S.K.M.
	Novel Foods - *Theory*	277-601601	3	3	
	Novel Foods - *Laboratory*	277-601602	1	1	
6A	Quality Assurance in Dietary Units (Quality Control in Nutritional Units)	277-60170	3	3	B.E.L.Hs.M.
	Quality Assurance in Dietary Units - *Theory*	277-601701	2	2	
	Quality Assurance in Dietary Units - *Laboratory*	277-601702	1	1	
6B	Organization & Management of Nutritional Units	277-60180	3	3	3B.E.L.Hs.M
	Organization & Management of Nutritional Units - *Theory*	277-601801	2	2	
	Organization & Management of Nutritional Units-*Laboratory*	277-601802	1	1	
	Nutrient Losses during Food Processing		3	-	O. M.

7th Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
1	Mass Food Production	277-70110	5	7	S.M.
	Mass Food Production - *Theory*	277-701101	3	5	
	Mass Food Production - *Laboratory*	277-701102	2	2	
2	Nutritional Management of Clinical Conditions II	277-70120	6	7	S.M.
	Nutritional Management of Clinical Conditions II - *Theory*	277-701201	3	5	
	Nutritional Management of Clinical Conditions II-*Laboratory*	277-701202	3	2	
3	Diet & Obesity	277-70130	3	3	S.M.
	Diet & Obesity - *Theory*	277-701301	2	2	
	Diet & Obesity - *Laboratory*	277-701302	1	1	
4	Nutritional Support for Pediatric Patients	277-70140	6	7	S.M.
	Nutritional Support for Pediatric Patients - *Theory*	277-701401	3	5	
	Nutritional Support for Pediatric Patients - *Laboratory*	277-701402	3	2	
5	Biostatistics in Nutrition	277-70150	2	3	G.K.M.
6A	Economics & Nutritional Policy	277-70160	3	3	B.E.L.Hs.M.
	Economics & Nutritional Policy - *Theory*	277-701601	2	2	
	Economics & Nutritional Policy - *Laboratory*	277-701602	1	1	
6B	Ergometry & Nutrition	277-70170	3	3	S.K.M.
	Ergometry & Nutrition - *Theory*	277-701701	2	2	
	Ergometry & Nutrition - *Laboratory*	277-701702	1	1	
	Nutrigenetics		3	-	O. M.
8th Semester					
No	**Module**	**Code**	**Hours**	**ECTS credits**	**Category**
	Thesis	277-80110	-	20	
	Practical Training	277-80120	-	10	

EXPLANATION:

G.K.M.: **Module of General Knowledge - *Compulsory***
S.K.M.: **Module of Special Knowledge – *Compulsory* & *At the option compulsory***
S.M.: **Specialization Module - *Compulsory***
B.E.L.Hs.M.: **Module of Business, Economics, Legislation and Human studies – *At the option compulsory***
O.M.: ***Optional* Module**

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The Curriculum in an overview

Core Curriculum

No	***Module***	***Semester***	***ECTS credits***
1.	*General & Inorganic Chemistry*	*1st*	*7*
2.	*Human Biology*	*1st*	*5*
3.	*Food Microbiology & Hygiene*	*1st*	*5*
4.	*Informatics*	*1st*	*5*
5.	*Analytical Chemistry & Instrumental Analysis*	*2nd*	*6*
6.	*Seminar*	*2nd*	*3*
7.	*Organic Chemistry*	*2nd*	*7*
8.	*Foreign Language Nutrition Terminology*	*2nd*	*4*
9.	*Introduction in Biochemistry*	*3rd*	*7*
10.	*Biochemistry of Macronutrient Metabolism*	*4th*	*7*
11.	*Introduction in Biostatistics*	*5th*	*7*
12.	*Biostatistics in Nutrition*	*7th*	*3*

Modules of Special Knowledge

No	Module	Semester	ECTS credits
1	Introduction to Nutrition & Dietetics	1st	4
2	Food Science	1st	4
3	Human Anatomy & Physiology	2nd	7
4	Food Toxicology	2nd	3
5	Ethics for Nutritionists-Dieticians	3rd	4
6	Physiology of Alimentation	3rd	4
7	Food Additives & Legislation	3rd	4
8	Food Chemistry & Analysis	3rd	7
9	Nosology	3rd	4
10	Principles in Food Preparation	4th	6
11	Food & Environment	4th	3
12	Food Technology & Quality Control	5th	7
13	Novel Foods	6th	4
14	Ergometry & Nutrition	7th	3

Specialization Modules

No	Module	Semester	ECTS credits
1	Nutrition during Pregnancy & Childhood	4th	7
2	Principles of Clinical Nutrition	4th	7
3	Nutrition during Adulthood and Older Age	5th	7
4	Nutrition Informatics	5th	5
5	Nutrition & Exercise	5th	4
6	Nutritional Counseling	6th	5
7	Sports & Nutrition	6th	7
8	Nutritional Management of Clinical Conditions I	6th	7
9	Nutrition Education – Health Education	6th	4
10	Mass Food Production	7th	7
11	Nutritional Management of Clinical Conditions II	7th	7
12	Diet & Obesity	7th	3
13	Nutritional Support for Pediatric Patients	7th	7

Modules of Business, Economics, Legislation and Human studies

No	Module	Semester	ECTS credits
1	Entrepreneurship	5th	4
2	Psychology & Nutrition	6th	4
3.1 3.2	Quality Assurance in Dietary Units (Quality Control in Nutritional Units) Organization & Management of Nutritional Units	6th 6th	4 4
4	Economics & Nutritional Policy	7th	3

Optional Modules

No	Module	Semester	ECTS credits
1	Foreign Language	3rd	-
2	Interpersonal Relations	4th	-
3	Micronutrient Metabolism	5th	-
4	Nutrient Losses during Food Processing	6th	-
5	Nutrigenetics	7th	-

	Semester	ECTS credits
Thesis	8th	20
Practical Training	8th	10

1st Semester

GENERAL AND INORGANIC CHEMISTRY

Weekly teaching hours: 3Theory + 3Laboratory
Credits: 7
Typical Semester: 1st
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM &: OBJECTIVES

The acquisition of basic knowledge of Chemistry and the understanding of chemical phenomena in order to be applied seamlessly to the following semesters' classes. Understanding the relationship between microcosm and macrocosm, and the dependency that exhibit the material properties from the structure and the interactions of their molecules.

OUTLINE

Generally about the science of chemistry. Classification and States of matter. Scientific calculations. Individual theories. Individual and Mass number. The concept of mol. Chemical bonds and Intermolecular forces. Nomenclature of inorganic compounds. Writing reactions. Categories of reactions. Properties of gases, solids and liquids. Thermochemistry. Solutions and colloidal dispersion systems. Chemical kinetics and chemical balance. Dimension and electrolyte ionization. pH-pOH. Elimination reactions, common ion effect, buffer solutions.

LABORATORY WORK

The students practice into the following laboratory practicals:
1. Safety regulations in the Chemistry Laboratory, Nomenclature of glassware and equipment, Weighing.
2. Determination of Density.
3. Qualitative data analysis.
4. Solutions.
5. Prosthetic Solutions Properties.
6. Calorimetry.
7. Chemical Equilibrium.
8. Chemical Kinetics.
9. Titration.
10. Measurement of pH.
11. Ultraviolet - Visible Spectroscopy
12. Infrared Spectroscopy

HUMAN BIOLOGY

Weekly teaching hours: 4Theory
Credits: 5
Typical Semester: 1st
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Familiarization of the students with the structure and function of the cell. Getting acquainted with the phenomena of heredity and study the laws that govern it (genetics). Familiarize the students with the terminology of metabolism.

OUTLINE

Introduction to the science of biology. Since the molecules in the cell and multicellular organisms. Biomolecules. Structure of living organisms, the role of water, carbohydrates, fats, proteins. Cell theory, prokaryotic cell, eukaryotic cell, viruses, bacteriophages organites Cell: The cell wall, cell membrane, transport of substances through the cell membrane. Vacuoles. Endoplasmic reticulum. Ribosomes. Mitochondria. Plastics. Lysosomes. Micro tube. Whips. Eyelashes. Basically particles and kentryllia core, nucleolus, nuclear membrane. Role of the nucleus, DNA, RNA, A.T.R. proteins, nucleic acids, DNA in space, RNAs. Genetics: Chromosome, recombination. Mitosis, reduction, laws of Mendel, fylokathorismos, multiple alleles, mutations, aneuploidies, efploeidies. Genetics: Biosynthesis DNA. Repair DNA. Biosynthesis RNA. Biosynthesis proteins. Genetic code. Bacterial transformation and conjugation. Genetic viruses and phages. Genetic engineering. Introduction to metabolism at the cellular level. Definitions of anaerobic and aerobic metabolism of glucose, fats and amino acids. Generally for the hormonal regulation of metabolism.

FOOD MICROBIOLOGY AND HYGIENE

Weekly teaching hours: 3Theory + 2Laboratory
Credits: 5
Typical Semester: 1st
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

To provide students with the basic knowledge of food microbiology and hygiene, with focal point the relationship of microbes with public health places, food and humans.

OUTLINE

The most important microorganisms of microbiology and hygiene (fungi, yeasts, bacteria). Their morphological, cultural, physiological and biochemical characteristics, their role and relationship with food and public health. Nutrition of bacteria, their nutritive types and physicochemical factors which influence their development and activities (temperature, pH levels, radiation, pressure). The development of single-celled microorganisms and its parameters (number of divisions, generation time, growth rate, age of bacteria, curve and development phases).Viruses and viral infections. Natural sources of food contamination (microbial chloride of plants, animals, soil, water and air), the principles of food preservation (heat, cold, anaerobic conditions etc.).Microbiology, hygiene and control of water, milk and meat. Illnesses transmitted by food which is contaminated with pathogenic microorganisms (food - infections and intoxications- prevention measures).Natural sources of contamination of the premises of public health, the development of resistant microbes. In-hospital diseases.

LABORATORY WORK

The students practice into the following laboratory practicals:
1. Microbiological techniques.
2. Identifications of the major food microorganisms.
3. Counting by the standard method (plates) of the microbial colonies
4. Counting by the method of multiple tubes.
5. Counting method with filtration membranes.
6. Counting by direct microscopic view.
7. Microbiological examination of water.
8. Microbiological examination of milk.
9. Microbiological examination of meat.
10. Microbiological examination of pastry.
11. Microbiological examination of mechanical kitchen equipment.
12. Microbiological examination of personnel of a food unit.

13. Microbiological examination of staff and hospital premises.
14. Receiving, treatment of and culturing secretions of the human body

INFORMATICS

Weekly teaching hours: 2Theory + 3Laboratory
Credits: 5
Typical Semester: 1st
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The acquaintance and study of personal computers for obtaining basic knowledge, which is necessary for understanding and solving the nutritional and dietary issues by using them.

OUTLINE

Structure and function of P/C. Introduction to Windows 2000 and later versions. Browse to your desktop and work inside a window. Use lines, tools, menus, dialogs and help system. Working with drives, folders and files. Managing files and folders. Basics of the Internet, the web (world wide web), electronic mail (e-mail), and the famous Netscape Navigator programs and Microsoft Internet Explorer. Introduction to Word for Windows. Create and edit documents. Working with tabs, indents, margins, pages. Using the correct tools, tables, world wide web (www). Manage and print documents. Sending documents via fax / e-mail. Introduction to Access. Database design, start-up and exit from Access. Create a database, a table. Manage and print a database. Introduction to Power Point. Create a slideshow and work with transparencies. Insertion, deletion and copying slides. Add and edit text, graphics, sounds and movies in a slide.

LABORATORY WORK

The students practice into the following laboratory practical work:
Acquaintance, structure & function of P/C. Introduction to Windows, navigate to the desktop and work inside a worksheet. Using menus, toolbars, dialogs and help system. Work on drives, folders and files. Introduction to Word, create and edit documents. Working with tabs, indents, margins, pages. Using the correct tools, tables. Manage and print documents. Introduction to Access, startup and exit, database design. Create a database, a table, management and those printing. Introduction to Power point. Create a slideshow and work with transparencies. Insertion, deletion and copying slides. Add and edit text, graphics, sounds and movies in a slide. Using the Internet to send and receive documents. Send documents by Fax and e-mail.

FOOD SCIENCE

Weekly teaching hours: 2Theory + 1Laboratory
Credits: 4
Typical Semester: 1st
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Understanding the composition of animal and plant foods, possible spoilages which may occur and the causes of the deterioration. Analysis of the major methods of food processing, which are also maintenance methods. Understanding the effect of processing methods and packaging on the quality and nutritional value of food.

OUTLINE

Generally about food. Food of animal and plant origin. Food nutrients (proteins, sugars, lipids, vitamins, minerals, natural pigments, toxic compounds). Food groups (meat, milk, fish, eggs, fruit and vegetables, cereals, pulses, alcoholic beverages, and seasonings). Food spoilage causes (physical, chemical, biological). Possible alterations of their nutrients. Possible changes in fruit and vegetables, meat, poultry, fish, milk, cereals and their products, pulses, beverages and seasonings).
Methods of food and preservation of food (dehydration, low temperature, high temperature use, fermentation, irradiation, use of additives, special processing methods, new technologies). Effect of preservation methods on food quality. Food packaging. Packing materials and interactions with food. Advances in food packaging.

LABORATORY WORK

Writing and presentation of group or personal essays and brief discussions on the theory subjects, visits to food processing plants.

INTRODUCTION TO NUTRITION SCIENCE AND DIETETICS

Weekly teaching hours: 2Theory + 1Laboratory
Credits: 4
Typical Semester: 1st
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Provide the initial skills and the general knowledge related to the science of nutrition and dietetics, in order to stimulate the interest of the students and to provide the basic knowledge for the subsequent study of the subject.

OUTLINE

Basic principles of nutrition. The history of diet. The influence of the written and oral tradition. The history of nutrition as a science. Evolution and achievements. International organizations. Factors which affect the diet of humans (psychological, socio-economic, cultural, etc.). Characteristics of a healthy nutrition. Energy balance, exercise and body weight. The role of the nutrients in human health. Food as source of nutrients. Diet and its role in the cycle of life. Dietary guidelines for maintaining health and preventing disease. Dietary treatment under the treatment of diseases. Technology and nutrition.

LABORATORY WORK

Commentary on case studies and assignments.

2nd Semester

ANALYTICAL CHEMISTRY AND INSTRUMENTAL ANALYSIS

Weekly teaching hours: 3Theory + 3Laboratory
Credits: 6
Typical Semester: 2nd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

To demonstrate the basic principles of quantitative analysis and the operating principles of the most important methods of instrumental analysis. Application methods in quality control of food and water samples.

OUTLINE
Solutions. Concentration of solutions and units. Indicators. Quantitative assays, reference curves, titration curves, Sensitivity. Threshold determinations. Detection limit. Gravimetry. Qualitative analysis of water. Spectrophotometry (UV, visible, infrared). Fluorimetry. Turbidimeter - Nephelometry. Flame fasmatometry. Atomic Absorption. Conductivity - potentiometry - Polarography.

LABORATORY WORK

Solutions (Preparation, Concentration, concentration units). The pH level of a solution and its measurement - Buffers. Volumetric analysis (neutralization, precipitate formation, redox, complexometric). Gravimetric Analysis (Moisture Determination). Determination of BOD and COD in surface and drinking water. Spectroscopy – Colorimetry. Fluorimetry. Turbidimeter – Nephelometry. Flame-emission spectrometry. Atomic absorption. Conductivity - potentiometry – Polarography. Liquid chromatography. Gas chromatography.

SEMINAR

Weekly teaching hours: 1Theory + 2Laboratory
Credits: 3
Typical Semester: 2nd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

To familiarize the students with getting access to scientific literature (printed and electronic) of nutrition and dietetics, writing an assay and presenting it to an audience.

OUTLINE

Searching of scientific articles in order to use them for scientific writing. How the objectives and questions are raised. Ways to search for bibliographic coverage of the subject. Libraries and electronic networks in Thessaloniki and Greece in general. Using the Internet. Email. The writing of a research paper. Order of presentation of topics and writing methodology. The structure of the paper in chapters and the bibliography. Presentation of an article. Methods and methodology of oral presentation. Using Power Point for presentations. Assessment and grading of an article. Writing and presentation of individual and group work.

LABORATORY WORK

Using electronic media on literature review of a topic. Practical implementation of the "Instructions to authors" peer-reviewed journals. Team work to boost cooperation on scientific subjects. Presentations using Power Point. Evaluation of the work and recommendations for improving it.

HUMAN ANATOMY AND PHYSIOLOGY

Weekly teaching hours: 3Theory + 3Laboratory
Credits: 7
Typical Semester: 2nd
Level of course: S.K.M. - Compulsory
Prerequisites: Biology

AIM & OBJECTIVES

Getting to know all body systems and their functions. Deepening in the coordination of the human body.

OUTLINE

Cells and tissues. Embryonic development. Postnatal development. Transport of substances through the cell membrane. Extracellular, intracellular fluid. Homeostasis, regulatory systems of the body balance.
Supportive system (external study bone composition, structure, study of the skeleton). Joints (Division joints, movements, study of the major joints).Musculature (structure and morphology of muscles, biological properties, striated muscle, description of the muscular system). Muscle function, muscle contraction. Muscle metabolism, heat muscles, muscle tone, muscle fatigue. The heart muscle and its properties. Circulatory system (heart, blood vessels, blood). Functioning of the circulatory system. Blood: bone marrow, erythropoiesis, reticulocytes, platelets. Immunity: Natural and acquired immunity, antigens, antibodies, blood group system A.B.O. Hemostasis, role platelet coagulation. Digestive system (mouth, pharynx, esophagus, stomach, small and large intestine, liver, pancreas, spleen). Functioning of the digestive tract (summarized).Respiratory system (larynx, trachea, chest cavity, lungs, thyroid gland, parathyroid glands, thymus).Urinary tract (kidneys, kidney and renal pelvis buds, ureters, bladder, urethra, adrenals), urinary function and expelling the urine. Reproductive system (the reproductive system of male, female reproductive system).Nervous system (neural tissue, division of the nervous system, anatomical study of central nervous system). The nerve cells and the promoting of the nerve impulse. Sensory organs (eye & vision, ear & hearing, nose & smelling, tongue & tasting, skin & touch, pressure, pain, temperature).Coordination systems and correlation of animal tissues (epithelial, connective, blood, muscle, nervous)Body composition. Growth. Regulation of food intake. Food energy - Energy costs. Energy metabolism - basic metabolism. Height energy requirements - Factors that influence them. Energy sources. Energy balance. Fluid balance. Instruments that affect the metabolism of the liquids. Acid-base balance.

LABORATORY WORK

Differentiation of cell types- differentiated cells. Tissues: Epithelial, Connective (microscopic observation of a rat). Tissues: Muscle, Nerve (microscopic observation of a rat). Systems of the human body. The institutions and principal functions. Count of the Erythrocytes. Osmotic resistance of erythrocytes - Fixing range of osmotic resistance.6. Determination of erythrocyte sedimentation rate. Hemostasis - Coagulation of blood. Determination of hematocrit. Blood groups (ABO / Rhesus). Arterial pulse - blood pressure. Respiratory control. Resting metabolism

ORGANIC CHEMISTRY

Weekly teaching hours: 3Theory + 2Laboratory
Credits: 7
Typical Semester: 2nd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The acquisition of basic Organic Chemistry knowledge as nomenclature and isomerism, an understanding of simple organic reactions and the rules governing them. Understanding the classification of organic compounds in a homologous series and identifying the main from those found in foods.

OUTLINE

Organic compounds and carbon. Categories of carbon chains. Homologous series and classification is of organic compounds. IUPAC nomenclature of organic compounds. Syntactic isomerism. Chemical activity and organic reactions. Chemical properties and preparations of alkanes, alkenes, alkynes, alkadienes, aromatics, alkyl halides, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines. Stereochemistry. Heterocyclic compounds. Carbohydrates. Amino Acids - Proteins. Lipids.

LABORATORY WORK

The students practice in the following laboratory practices: Safety rules in the Chemical Laboratory. Nomenclature of utensils. Melting point and boiling point of organic compounds. Crystallization - Recrystallization. Distillation (simple, fractional - water vapor). Extraction. TLC. Qualitative analysis of alcohols. Qualitative analysis of aldehydes and ketones. Qualitative analysis of carbohydrates. Qualitative analysis of amino acids - proteins. Isolation of natural products - Alkaloids. Isolation of natural products - Essential Oils.

FOREIGN LANGUAGE NUTRITION TERMINOLOGY

Weekly teaching hours: 3Theory
Credits: 4
Typical Semester: 2nd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Acquiring the ability to read, communicate and attend lectures in a foreign language, on topics related to nutrition and dietetics.

OUTLINE

Texts on the science of nutrition and dietetics, including: Nutrition and pregnancy. Diet - Television - Children. Food allergies. Nutrition and alcohol, sport and old age. Diet and medication. Nutrition and disease prevention. Nutrition and Cancer. Diet and hypertension. Diabetes. Cholesterol and Triglycerides. Conducting an application and a CV in a foreign language. Reading comprehension questions and exercises. Lexical exercises for learning the terminology. Grammar exercises on the material covered in previous semesters. Essay writing related to nutrition and dietetics. Traceability theme through audiovisual systems.

FOOD TOXICOLOGY

Weekly teaching hours: 2Theory + 1Laboratory
Credits: 3
Typical Semester: 2nd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVE

To provide the necessary knowledge about the toxic substances found in food as endogenous components, as exogenous factors from the environment, as products of interaction during the food processing and as food toxins of microorganisms. Understanding the impact of toxic substances in the body, symptoms and ways to avoid or prophylaxis of intoxication.

OUTLINE

Definition of food toxicology. Assessment of food safety. The theory of profit and risk as applied to food. Modes of action of toxic substances. Phases of toxic action. Dose effect relationship and time effect. Synergy and antagonism of toxic substances. Definition ADI and NOEL. Toxicological tests. Methods event of intoxication. Toxicological role of the gastrointestinal tract. Toxins of microorganisms. Staphylococci, Salmonella, Coliforms, Botulism, Mycotoxins. Toxic substances from the environment. Food Toxicity: Folic acid, lectins, seafood toxins, hormones, lathyriasi, kyamosi. Toxicity of natural food ingredients: sugar, fats, amino acids, caffeine, alcohol. Monosodium glutamate. The Chinese restaurant syndrome. Antinutritional factors (Competitors vitamin, enzyme inhibitors). Interaction of drugs and food ingredients. Toxic substances from the environment. Lead, cadmium, mercury, pesticides. Toxic substances formed during processing or preparation of food. Food Allergies: Definition, Types.

LABORATORY WORK

Introduction to food toxicology laboratory analyses. Methods of analysis. Design of the basic parameters of the measurements. Calibration curve. Determination of toxic substances in food

3rd Semester

ETHICS IN NUTRITION AND DIETETICS

Weekly teaching hours: 3Theory
Credits: 4
Typical Semester: 3rd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The acquisition of basic knowledge and awareness of ethical attitudes, values and ethical standards that should govern the professional conduct in daily practice, in order to upgrade, the smooth and efficient operation of institutions or workplaces and achieve high quality work for the benefit of society.

OUTLINE

Professional rights and obligations. Principles and rules of professional ethics. Social values. Dietitian's relationship with the health professions. Dietitian's relationship with the patient and the family environment. Basic principles of medical ethics (medical confidentiality, informed consent, record keeping, information doctors). Patient support group nutritional function (composition, means, collaboration, coordination). Assess and improve nutritional care for hospitalized. Relationship with institutions and medical services companies. Activities and professional rights of hospital staff in the department of nutrition. Membership and cooperation with other sectors (management office, food store, catering and distribution staff). The position of the basic human values in the profile of the dietitian (accountability, trust, communication, self-control, cooperation, etc.). Modern bioethics and professional ethics.

NOSOLOGY

Weekly teaching hours: 3Theory
Credits: 4
Typical Semester: 3rd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

To get all the necessary knowledge on the pathogenesis and treatment of diseases of the body's systems.

OUTLINE

Health and disease. Diagnostic criteria. Medical history. General causes of diseases. Transmission modes. Immunity. Hypersensitivity reactions (anaphylaxis, orronosia, allergy). Infectious diseases. Viruses. Infestations. Fungal infections. Diseases of the respiratory system (bronchitis, pneumonia, bronchial asthma, lung tuberculosis). Diseases of the joints, bones and the collagen (rheumatic diseases, gouty arthritis, rheumatoid arthritis, osteoarthritis). Osteoporosis, osteomalacia. Lupus erythematosus, dermatomyositis, vinegary polyartiritis). Diseases of the endocrine glands (thyroid, parathyroid, adrenal, pituitary). Urinary tract disease (nephritis, pyelonephritis, urolithiasis, cystitis). Diseases of the liver (hepatitis). Skin conditions. Blood Diseases (hemoglobinopathies, leukemias, bleeding, blood clotting disorders). Neoplasms benign, malignant, etiology, early diagnosis, age effects, diagnosis, treatment). Neurological disorders (epilepsy, cognitive dementia, Parkinson's disease, muscle diseases and motor neuron, multiple sclerosis). Mental disorders and behavioral disorders.

NUTRITION PHYSIOLOGY

Weekly teaching hours: 2Theory +1Laboratory
Credits: 4
Typical Semester: 3rd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Knowledge of the physiology of the digestive system and digestive function.

OUTLINE

The neuronal control of the gastrointestinal tract, the neurotransmitter substances in the gut wall, exogenous rib intestinal tract. The gastrointestinal hormones, gastrin, cholecystokinin, secretin. The gastric inhibitory peptide. Vasoactive intestinal peptide. Glucagon, pancreatic polypeptide, endogenous opioids, substance P, motilin, neurotensin, somatostatin. The motor patterns of the gastrointestinal tract peristalsis, mixing, tonal contractions and the immigration electrical muscle cluster. Gastrointestinal secretions. Hunger, appetite, saturation. Nerve centers which control the regulation of food intake. Other factors that regulate the food intake. Biological bases of hunger and satiety. Factors that stop eating. Mouth, pharynx and esophagus. The saliva, swallowing, stomach. The secretory function of the mouth. The regulation of the secretion of gastric fluid. The digestion and absorption in the stomach. The duodenum, small intestine, the secretions of the small intestine. Control intestinal fluid secretion. Digestion and absorption in the small intestine. The colon. Functional morphology of the colon, the colon motility, secretion and absorption in the colon. The fecal consistency, microbiological chloride. The liver, the bile. The effects of the bile. The pancreas and its functions. Digestion and absorption of nutrients (carbohydrates, proteins, lipids, alcohol). Problems of hyperactivity or unbalanced intake of nutrients.

LABORATORY WORK

Exercises for the digestive function and assays.

INTRODUCTION IN BIOCHEMISTRY

Weekly teaching hours: 4Theory +3Laboratory
Credits: 7
Typical Semester: 3rd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Learning the characteristics and basic properties of biological molecules (proteins, enzymes, nucleic acids, carbohydrates, lipids), their role in the functioning of life and their importance as components of the diet of all living organisms. Vitamins. Hormones.

OUTLINE

Chemical composition and structure of cells - bacterial cells, eukaryotic cells, animal cells, plant cells. Amino Acids. Peptide bond. Proteins - operations, solubility, identification, structure and denaturation of proteins. Enzymes -

cofactors, coenzymes and prosthetic groups. Ablation strategies. Kinetics of enzymatic reactions, effect of pH, temperature. Enzyme inhibition. Allosteric enzymes. Strategies regulation of enzymes and proteins. Carbohydrates, structure and nomenclature of carbohydrates. Simple sugars reactions of simple sugars. Oligosaccharides and polysaccharides. Lipids, fatty acids, tri-acyl glycerols, phospholipids, glycolipids. Nucleic acids and gene expression. The structure of nucleic acids Copy and transcription of DNA. Translation - protein synthesis. Gene regulation in bacteria and eukaryotes. The thermodynamics of the enzymatic catalysis. Metabolism and metabolic pathways. The three stages of catabolism. Vitamins. Discrimination based on solubility in water. Vitamins – pro-vitamins - compounds with vitaminic action. Losses of vitamins. Functions of vitamins. Cell membranes and transmembrane transport. Lipid bilayer. Membrane transport (sodium-potassium pump). Transfer with vesicles. Cell communication - hormones. Signal transfer. Endocrine communication. Paracrine communication. Autocrine communication. Neuronal communication. Contact dependent on contact. Molecular signal transduction mechanisms. Hormones - insulin, glucagon - epinephrine.

LABORATORY WORK

Determination of amino acid: ninhydrin reaction. Free amino acids and absorption in the UV. Determination of protein: biuret reaction. Reaction and absorption in the UV. Enzymes: Effect of the concentration of enzyme (amylase). Enzymes: Effect of concentration, pH and temperature of incubation. Enzymes: Effect of substrate concentration (fainolasi). Carbohydrates: Study of the structure of glycogen. Laboratory techniques in biochemistry: Chromatography TLC. Laboratory techniques in biochemistry: electrophoresis. Laboratory techniques in biochemistry: gel filtration chromatography or gas chromatography.

FOOD ADDITIVES AND LEGISLATION

Weekly teaching hours: 2Theory +1Laboratory
Credits: 4
Typical Semester: 3rd
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The approach of the basic principles of toxicology and understanding of toxicological testing prior to the authorization of additives. The acquaintance with the functional characteristics of the various categories of additives and legislation governing them. Understanding the marketing rules different food categories (with enhanced nutritional value, dietary, special diet, functional, nutritional supplements), and the rules relating to the labeling of nutrients, nutrition and health claims and other information. Understanding the Food and Drink Codex structure and its function.

OUTLINE

Entrance of toxic substances in biological systems, distribution and bio modifications. Bioaccumulation. Bio magnification. Degradation. Indicators and toxicity categories. Interactions of toxic substances and the effects of their entry in living organisms and humans. Definition and origin of prosthetic materials. Acceptable daily intake. Basic requirements and implementing legislation of food additives. Classification and labeling of additives. Substances that are not considered as additives. Categories of additives: antioxidants, preservatives, dyes, thickeners, stabilizers, gelling agents, stiffening agents, emulsifiers, emulsifying salts, foaming and defoaming agents, bulking agents, fillers and enhancers flour, coating agents, sequestering agents, anti-caking agents, odor and flavor substances, humectants, dissolution carriers, food packaging gases and propellants. Enhancing the nutritional value of food. Special diet foods. Food dietary and dietary for special medical purposes. Nutritional supplements. The position of supplements in the population. Identification and control of supplements. Functional foods. Labelling of nutrients. Labelling of food ingredients. Nutrition and health claims. Authorization procedure and labelling of health claims. Structure of the Food and Drink Code. Conditions and marketing approval process of a new product.

LABORATORY WORK

Writing and presentation of group or personal essays on the theory subjects. Visits to food additives production and marketing units.

FOOD CHEMISTRY AND ANALYSIS

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 3rd
Level of course: G.K.M. - Compulsory
Prerequisites: Analytical Chemistry & Instrumental Analysis

AIM & Objectives

Gaining knowledge on the chemistry of foods (composition, properties, changes) in order to understand food processing and storage.

OUTLINE

Water contained in food (water binding, water activity) – determination methods. Carbohydrates (Reactions of monosaccharides, Glucosides. Maillard reaction. Enzymatic browning. Oligosaccharides. Polysaccharides) - methods of analysis. Proteins (Globulins, proteids etc. Split according to their solubility. Chemical changes of proteins. Classification based on its solubility. Chemical modification of proteins.Degradation of proteins. Biogenic amines) - Methods of analysis. Fats and oils (Synthesis, cleavage, alkaline hydrolysis, enzymatic hydrolysis. Phosphatides. Sterol. Alcohols and glykerinoaitheres. Lipochromata. Other ingredients of fats and oils. Chemical conversion of fats and oils) - Analysis methods. Minerals (sodium, potassium, magnesium, calcium, chlorine, phosphorus, iron) - Analysis methods. Minerals (Iodine, Copper, Fluoride, Zinc, Manganese, Cobalt, Molybdenum, Chromium, Nickel, Selenium) - Methods of analysis.

LABORATORY WORK

Humidity of food -Determination of moisture content using the gravimetric method and azeotropic distillation. Ash of foodstuffs - Determination of ash by direct incineration. Determination of total acidity in foodstuffs. Detection of components in food (milk). Fibre - Determination of fiber. Fats and oils in foods - Determination of fat or oil by Soxhlet method. Proteins in food-Determination of total food protein by the Kjeldahl method. Sugars in food - iodometric determination of sugars. Polarimetric determination of sugars. Separation of fat soluble vitamins with TLC. Spectrophotometric determination: a) vitamin B6, b) carotenoids. Detection and quantitative determination of ascorbic acid. Iodometric determination of total sulfurous acid. Inorganic substances in foods - photometric determination of iron in drinking water. Food additives - photometric determination of sorbic acid. Hazardous substances in foods - Spectrophotometric determination of lead. Essential micronutrients in food- Spectrophotometric determination of iodine.

4th Semester

BIOCHEMISTRY METABOLISM OF MACRONUTRIENTS

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 4th
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The study of the metabolism of macronutrients at a molecular, cellular and at human body level with emphasis on the energy metabolism.

OUTLINE

Overview of the metabolism. Metabolic roads. Metabolic activities of the main organs. Stages of catabolism. Effect of hormones. Interdependence of metabolic routes. Interdependence of metabolism among different tissues. Overview of metabolism. Metabolic roads. Metabolic activities of the main bodies. Stages of catabolism. Effect of hormones. Interdependence of metabolic routes. Interdependence metabolism between different tissues. Overview of carbohydrate metabolism (Glycolysis. Glycogen Metabolism. Gluconeogenesis. Metabolism of fructose, glucose, glycerol and phosphate pentoses. Citric acid cycle. Circle of glyoxylic acid). Generally for the metabolism of fats (triglycerides. B-oxidation. Oxidation of unsaturated fatty acids. Other ways of oxidation of fatty acids. Metabolism of alcohol. Biosynthesis of fatty acids. Metabolism of triglycerides. Metabolism of phosphoglycerides, sphingolipids, cholesterol, arachidonic. Biosynthesis of eicosanoids). Generally for the metabolism of amino acids (Dynamic balance of amino acids-proteins. Deamination of amino acids. Urea Cycle. Degradation of the carbonate skeleton. Amino acid derivatives. Biosynthesis). Integration of metabolism.

LABORATORY WORK

Lipids: Effect of the composition of the fat in the permeability of the lipid monolayer. Study of the permeability of liposomes. Determination of total and HDL cholesterol. Nucleic acids. Isolation of DNA. Purity control and denaturation of DNA. Determination of the activity of trypsin inhibitor. Isolation and purification of a protein (acid phosphatase). Reactions of the cycle of Krebs. Isolation of mitochondria and study enzyme activity cycle Krebs.

FOOD PRODUCTION PRINCIPLES

Weekly teaching hours: 3Theory +3Laboratory
Credits: 6
Typical Semester: 4th
Level of course: S.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The understanding of the physico-chemical behavior of food nutrients (water, proteins, carbohydrates, lipids, natural dyes) before, during and after processing in the production unit. The understanding of the impact of the formation, structure, and the friendly or hostile relations between food components, physicochemical and functional behavior and generally the quality and nutritive value of the end products. The ability to evaluate the quality of finished products.

OUTLINE

Water: Structure. Interaction with other molecules. Physicochemical properties. Water activity. Role of the food and the human body. The drinking water. Proteins: Structures. Physical Configuration and denaturation. Functional properties (water binding, solubility, viscosity increase, gelation, emulsification and foaming ability, viscoelastic properties, fat adsorption, commitment flavoring). Functional properties of meat proteins, milk, eggs and fruit cereal. Effect of these on the quality and nutritive value of the final products. Carbohydrates: Nutritional importance and functional properties of carbohydrates. Classification. Monosaccharides and disaccharides. Oligosaccharides. Sugar alcohols. Starch and pastries. Cellulose and its products. Hemicelluloses. Pectin constituents. Dietary fiber. The plant cell. Changes in plant tissues during maturation and processing. Industrial fermentations of carbohydrates. Lipids: Classification. Fatty acids. Glycerides. Physical properties of lipid and food quality (relative density, flavor, color, viscosity, melting point, polymorphism, plasticity, emulsifying ability). Chemical properties of lipid and food quality (hydrolysis, hydrogenation, oxidation, polymerization, re-esterification). Frying and frying oils. Lipids and emulsions. Salad oils. Salad dressings. Mayonnaise. Natural pigments: Overview of color. Chlorophylls from a technological and nutritional point of view. Carotenoids from a technological and nutritional point of view. Phenolic compounds from technological and nutritional point of view. Betalaines from a technological and nutritional point of view. Effect of processing and external factors on natural dyes.

LABORATORY WORK

Proteins flour: hydration grade and effect of various additives in their operating characteristics. Proteins meat: Effect of heat treatment conditions on ISNE, quality and performance of meat. Cereal and potato starches: Effect of starch gelatinization in the structure of starch granules and the organoleptic characteristics of the baked products. Polysaccharides of plant tissues: Effect of cooking method and various additives on the quality of vegetables. Fermentation of the lactose of milk: Effect of composition of milk and fermentation conditions on the quality of yoghurt. Milk cream: Factors influencing the size and stability of the foams of whipped cream. Lipids and potato frying: Effect of the quality and durability of frying oil in the final product's quality characteristics. Emulsions - Preparation of mayonnaise: Effect of the presence of various components in the stability and the quality characteristics of Natural pigments of fruits and vegetables: Influence of the environment and various components in the color and stability of pigments.

FOOD AND ENVIRONMENT

Weekly teaching hours: 2Theory
Credits: 3
Typical Semester: 4th
Level of course: S.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

To provide the necessary knowledge about the use of resources for food production, the creation of waste, the environmental impact and food crises.

OUTLINE

Pollutants and contaminants in food. Environmental pollutants (organic, inorganic, living, radioactive) food. Food safety issues and environment. Technical analysis of environmental pollutants in food. Effects on the environment of food production. Environmental management systems during production, processing and distribution of food. Waste management: Management and disposal of municipal waste from food consumption. Management of natural resources and food production. Organic foods and the environment. Genetically modified foods and the environment. Biofuels and food availability. Irradiated food and the environment. Food life cycle. Food life cycle analysis. The life cycle analysis as a tool for assessing environmental impact.

NUTRITION DURING PREGNANCY & CHILDHOOD

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 4th
Level of course: S.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

It aims to first contact of students with the needs of the human body in nutrients and energy during pregnancy and the different phases of development in the fetal stage, infancy, early childhood and adolescence.

OUTLINE

The Pregnant woman: Weight gain during pregnancy. Allocation of excess weight in different tissues. Becoming familiar with the literature of the American, the British and the French sizes. Growth of the fetus. Nutrition before pregnancy. Nutrition during pregnancy. Requirements of proteins, carbohydrates and fats. Claims in minerals, vitamins, trace elements and polysaccharides. Recommended Daily Intake of vitamins, minerals, proteins, carbohydrates and fats. Nutritional deficiencies and congenital abnormalities associated with diet. Effect of various substances and alcohol during pregnancy. Complications in fetal development, perinatal mortality, teratogenicity. Paternal alcohol consumption. High-risk pregnancy: anemia, diabetes mellitus, obesity, hypertension, cardiovascular disease, kidney disease, phenylketonuria, nausea, vomiting, hypertension, pregnancy constipation, hemorrhoids, teenage pregnancy. Vegetarianism and pregnancy. Protein requirements, B12, Fe, D3, Ca, folic acid, Zn, omega-3 fatty acids. Recommendations for women who work during pregnancy. Infant feeding: Endocrine alterations in the digestive tract after birth. Breastfeeding. Physiology of lactation. Physiological and psychological factors that inhibit breastfeeding. Composition of breast milk. Fatty acids, phospholipids, prostaglandins, steroids, essential fatty acids. Changes in the composition of breast milk during 24 hours. Cow's milk. Comparison of breast and cow's milk in the content. Factors that influence the levels of fatty acids in breast milk. The importance of omega-3 and omega-6 fatty acids on infant health. The transition from milk to varied food and the difficulties presented to the infant .Eating disorders of infants. The physical development of the child in the first year of his life. Recommended daily nutrient levels. The physical development of children from 1 to 3 years. Recommended daily nutrient levels. Feeding children at school age and disorders at this age. Diet during adolescence and eating disorders at this age.

LABORATORY WORK

Fundamentals for conducting dietary plans. General principles of anthropometry. Food groups – Equivalents. Food Composition Tables. Design diet for normal, obese and pregnant teenagers. Nutrition therapy for pregnant women with anemia, hypertension, diabetes mellitus, heart disease, nausea, vomiting, constipation, hemorrhoids, etc. Nutrition during early infancy. Anthropometric and dietary assessment. Nutrition for preschoolers (1-3 years). Anthropometric and dietary assessment. Diet planning. Nutrition for school-age children. Anthropometric, biochemical and dietary assessment. Diet planning for children 3-6 years and 6-12 years. . Nutrition for adolescents. Anthropometric, biochemical and dietary assessment. Diet planning for adolescents.

PRINCIPLES OF CLINICAL NUTRITION

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 4th
Level of course: S.M. - Compulsory
Prerequisites: Physiology of Alimentation

AIM & OBJECTIVES

Understanding the basic concepts governing the interaction between diet and disease, modification of metabolic mechanisms and metabolic requirements, and the impact of these changes in calculating the dietary needs of patients. Familiarity with tools (methods) and evaluation indicators of nutritional status of the patient for early identification of nutritional risk and assess the effectiveness of dietary intervention.

OUTLINE

Diet and disease interaction. Modification of metabolic models (stress, sepsis, hyper catabolic states). Calculation needs depending on the metabolic model. Malnutrition in patients. Hospitalized patients. Risk factors for malnutrition. Effect of disease in nourishment. Implications of malnutrition on the body (its systems), in sickness and their outcome. Interaction of nutrition and drugs. Assessment of the nutritional status of patients. Assessment of the effectiveness of dietary treatment. Evaluation of nutrition in children. Nutritional support authorities. Technical assessment of the functional state of the intestinal tract. Estimation techniques of homeostasis of carbohydrates - lipids - proteins in artificial nutritional support. Assessment of levels of Fe, Ca, electrolytes and immune response in artificial nutritional support. Diet modification. Special diets. Classification. Enteral nutrition. Techniques for accessing the intestine. Specific solutions. Methods of decision making between different nutritional support options. Complications of artificial feeding. Precautions. Parenteral nutrition. Probiotics and fiber.

LABORATORY WORK

Taking a patient's medical history. Assessment findings (laboratory and clinical). Nutritional Assessment Screening for risk of malnutrition (Malnutrition risk assessment screening). Evaluation of anthropometric indicators and ranking metabolic model. Evaluation of biochemical nutrition indicators (carbohydrates, fats, proteins). Rating mineral status indicators, electrolytes, vitamins. Evaluation of immune status. Body composition (phase angle). Dynamometer. Respiratory quotient patient. Indirect calorimetry. Resting metabolism calculation. Calculation of daily needs depending on metabolic state. Design diet for patients with stress, patients with sepsis, in other hyper catabolic state. Familiarity with the technical infrastructure and the possibilities of artificial nutrition (pumps, catheters, artificial feeding solutions). Hospital organization chart. Food service responsibilities.

5th Semester

FOOD TECHNOLOGY AND QUALITY CONTROL

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 5th
Level of course: S.K.M.. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The training of students on issues relating to the methods of production, maintenance and quality control of animal and plant products. Understanding the importance of food quality control is a prerequisite for working in places where, directly or indirectly, come into contact with foodstuffs intended for human consumption.

OUTLINE

About Quality. Definitions, objectives and quality control stages. Quality control of raw materials, production process and final product. Methods of quality control. Organizational chart of operational food plants. Duties of the Quality Control department. Qualitative characteristics of food (Quantitative implicit, organoleptic and functional characteristics). Organoleptic characteristics. (Appearance, texture, smell and flavor, taste). Introduction to HACCP. Milk & Dairy Products: Production milk constituents. Microbiology of milk, pasteurized and sterilized milk. Acidic dairy products. Yoghurt, cheese. Quality control of milk and dairy products. Meat and meat products: Description & classification of meat and meat products. Smoking, salting and nitration. Dehydrated, pasteurized and boiled sausages. Maintenance of meat and meat by chilling. Quality control of meat & meat products. Fishery products: Classification of catches. Chemical composition and biological value. Preservation by cooling and freezing. Canning, salting, smoking and drying of catches. Quality control of fisheries. Fruits & Vegetables: Generally for preserving fruits and vegetables. Canning fruits. Canning vegetables. Drying fruit. Prunes, sultanas, figs. Quality control of fruits & vegetables. Fats and oils: oil receiving Technology – Olive oil. Olive preparation technology. Quality Control fats & oils. Cereals: Cereal production technology. Qualities of flour, bread making. Cereal products. Quality control of cereals and their products. Wine making technology. Quality Control of wine. Brewing technology. Quality control of beer. Manufacturing technology of coffee and tea. Quality control. Manufacturing technology of pickles. Quality control.

LABORATORY WORK

Analysis of organoleptic tests. Representative tests: pair comparison test, triangular test & test duo-trio, ranking test, multiple comparison test. Dilution tests and threshold difference. Quantitative tests descriptive analysis. Analysis of flavor profile and assessment by using multiple axes charts. Preference tests. Quality control of various food products. Macroscopic quality control and quality assessment of meat and delicatessen meat products. Macroscopic quality control and qualitative assessment of poultry eggs and their preparations. Macroscopic quality control and qualitative assessment of milk and milk products and. Macroscopic quality control fruit - vegetables and qualitative assessment. Macroscopic quality control and qualitative evaluation of bakery. Macroscopic quality control and qualitative assessment of wine and. Macroscopic quality control and qualitative assessment of coffee, cocoa and tea. Macroscopic quality control and qualitative assessment of honey, royal jelly and pollen. Quality control of preserves.

NUTRITION DURING ADULTHOOD AND OLDER AGE

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7

Typical Semester: 5th
Level of course: S.M. - Compulsory
Prerequisites: Nutrition during Pregnancy & Childhood

AIM & OBJECTIVES

The study of the diet of adults and the elderly and the factors affecting it. To provide the necessary knowledge about the dietary needs of adults, to maintain their health and achieve longevity. Providing knowledge to students in order to be able to compile, analyze and prepare diets for adults and elders.

OUTLINE

Preventive nutrition and factors affecting feeding. Food pyramids and daily recommended dietary intakes (DRI or RDA). Body composition and Anthropometry. Energy balance and weight control. Normal and regulatory control of food intake. Nutrients (Carbohydrates, lipids, Proteins, Vitamins, minerals, trace elements). Vegetarianism. Characteristics of aging. Changes in body composition during aging. Changes of the main functions of the body during aging. Energy needs of the elderly. Needs of the elderly in nutrients. Chronic diseases in old age related to nutrition. Insulin resistance. Nutrition and lifetime (Longevity).

LABORATORY WORK

Methods of assessing the nutritional status individuals or group of persons. Methods for calculating the dietary intake. Stages for calculating the calorific loss of a person. Anthropometry. Conducting of dietary plans. Presentation of nutritional P/C packages. Design, preparation and analysis of diets for adult women. Design, preparation and analysis of diets for adult men. Design and analysis of diets for the elderly. Assessment of the nutritional value of various dietary products. Preparation of diets for the elderly.

INTRODUCTION IN BIOSTATISTICS

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 5th
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Introduction to concepts of Biostatistics for the acquisition of basic knowledge in the design of experiments, which lead to the collection, presentation and interpretation of numerical data. Applications of Biostatistics in nutrition science and dietetics using Excel package at PCs.

OUTLINE

Variability - Variable, population and sample. Sampling: Terminology, design of the project, experimental design, sampling methods, quantitative sampling. Summarizing and presenting data: Discontinuous data, continuous data, graphs, measures of central tendency and dispersion, arithmetic average, properties and variability properties, coefficients of variation, median of a geometric mean, harmonic mean, range, average deviation. Probability distributions: Definition, normal distribution, binomial distribution, distribution of Poisson, multinomial distribution, distribution of average sample distribution t, distribution x2, distribution F. Confidence limits: the average, the variability, rate, sample size. Hypothesis tests with continuous data: Introduction to hypothesis testing that the average of the population has a certain value, comparing two variabilities, comparing two averages, confidence limits, difference of two averages. Hypothesis testing with discontinuous data: The percentage of the population has a certain price level, adjustment controls, comparing two percentages, independence checking. Analysis of variance: Definition, principles pilot project completely randomized design, comparing averages, randomized complete block design, Latin square, conversion data. Regression and correlation: Overview of the relationship between two variables, linear regression, correlation and nonparametric methods.

LABORATORY WORK

Introduction to Excel and Biostatistics. Summary, presentation and data entry on the worksheet. Scales in quality control of food. Creating worksheets and exercises functions. Presentation of the results of an empirical investigation into Excel. Descriptive statistics and applications with charts in Excel. Formatting worksheets and graphs with PC. Applications to normal, binomial and Poisson distribution with PC. Applications to polynomial division, allocation x2, distribution F, t-distribution with PC. Applications of Excel for the confidence limits and hypothesis testing with PC. Applications and exercises with PC in the analysis of variance. Applications and exercises with PC in the regression and correlation.

NUTRITION INFORMATICS

Weekly teaching hours: 2Theory +2Laboratory
Credits: 5
Typical Semester: 5th
Level of course: S.M. - Compulsory
Prerequisites: Informatics

AIM & OBJECTIVES

To introduce students in modern methods and techniques of using information technology in the field of Nutrition and Dietetics. Familiarization of students with the basic tools of informatics such as databases, for example the MS ACCESS, as well as their applications in the field of Nutrition & Dietetics. Also the practical training of students via exercises and assays.

OUTLINE

To introduce students in modern methods and techniques utilization of information technology in the field of Nutrition and Dietetics. Familiarization of students with basics of information tools such as databases, for example the MS ACCESS, as well as their applications in the field of nutrition-diet. Also the practical training of students through exercises and tasks.

LABORATORY WORK

The purpose of the laboratory is the students to acquire the skills in order to be able to effectively use software packages currently used widely in the field of Nutrition & Dietetics for data processing. Using special computer programs as the programs for dietary planning and the programs for data analysis in the field of Nutrition & Dietetics, etc. Design and implementation of Nutrition & Dietetics database by using desktop database tools such as Microsoft Access, as well as the implementation of applications in specific databases of Nutritional & Dietetic data.

ENTREPRENEURSHIP

Weekly teaching hours: 3Theory
Credits: 4
Typical Semester: 5th
Level of course: B.E.L.Hs.M.- At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

The development of theoretical and practical knowledge and skills necessary for future successful entrepreneur.

OUTLINE

Concept of business. Introduction to Business Administration. Introduction to Marketing. Introduction to Financial Management. Introduction to production management. Introduction to business strategy. Key issues of Commercial Law and Labor Law. Key Issues of Economic Theory.

NUTRITION AND EXERCISE

Weekly teaching hours: 3Theory
Credits: 4
Typical Semester: 5th
Level of course: S.M. - At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

The personal coping skills that help in the adoption of healthy lifestyles. Emphasis on changes in lifestyles that help prevent illness and promote good health and well-being.

OUTLINE

Health, Fitness and wellness and healthy lifestyles, adherence to healthy habits, Food Pyramid, pyramid of exercise, dietary Benefits in health, health benefits of exercise, healthy nutrition as a lifestyle, exercise as a lifestyle, metabolism, exercise. Nutrients and exercise. Exercise in childhood and adolescence. Exercise of adults and the elderly. Exercise in preventing and fighting various diseases. Athletic performance, Body composition, Anxiety, ignorance and misinformation.

MICRONUTRIENT METABOLISM

Weekly teaching hours: 3Theory
Credits: -
Typical Semester: 5th
Level of course: O.M. - Optional
Prerequisites: None

AIM & OBJECTIVES

Understanding the processes of digestion, absorption, biochemistry, metabolism and homeostasis of micronutrients.

OUTLINE

The course includes the study of the metabolism of micronutrients of water-soluble vitamins (C and b), fat-soluble vitamins (A, D, E, K) and minerals (Ca, P, Mg, Na, K, Cl, Fe, Zn, Cu, Se, Cr, other trace elements and ultra-trace elements) and the study of regulating the balance of fluids and electrolytes in the body.

6th Semester

NUTRITIONAL COUNSELING

Weekly teaching hours: 3Theory +2Laboratory
Credits: 5
Typical Semester: 6th
Level of course: S.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The acquisition of theoretical knowledge and practical skills related to nutrition counseling. The emphasis is on increasing the effectiveness of dietary advice to change behavior.

OUTLINE

Definition of nutritional counseling, communication skills, methods to change behavior. Meta theoretical model for behavioral change, change procedures, characteristics of a good consultant. Structure of counseling sessions. First counseling session, counseling people in the preliminary design stage, in the study phase, in the stage of preparation, in the stage of action, in the process of maintenance when the maintenance fails. Nutritional counseling for weight management, nutritional counseling for prevention and treatment of coronary disease. Nutritional counseling for diabetes and nutritional counseling in hypertension.

LABORATORY WORK
Assessment of personal advisory capacity. Strategies for investigating the motives to change dietary behavior. Strategies to build motives to change dietary behavior. Strategies of person's liberation and progress towards change. Strategies towards increasing commitment to implement the action plan. Strategies to avoid recidivism in the action plan. Review of the consultative capability. Troubleshooting case studies

SPORTS AND NUTRITION

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 6th
Level of course: S.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The study of the nutritional needs of male and female athletes. Providing the necessary knowledge for planning diets for athletes, which will help optimize athletic performance.

OUTLINE

Needs of athletes in energy (energy for muscle function, involvement of energy reserves in power mechanisms. Proteins and athletic activity. Carbohydrates (sources needs before, during and after the match). Fluids of the body. Needs of athletes in vitamins. The role minerals and fiber in sports nutrition. Caloric needs and sport. Competition bodyweight. Editors diet for athletes of various sports. Conduction of dietary plans for athletes in various sports.

LABORATORY WORK

Respiratory quotient. Caloric equivalent of oxygen and carbon dioxide. Measurement of basic metabolism and exercise metabolism. Assessment of nutritional status of athletes. Diet planning for athletes. Maintaining the playing body weight. Planning a diet for athletes in athletics, weightlifting, body building. Planning a diet for footballers. Planning a diet for athletes of basketball & of volleyball. Planning a diet for athletes athletics and Ballet. Planning a diet for athletes in basketball, volleyball and swimming. Maintaining the agonistic bodyweight. Diet planning for athletes in athletics, weightlifting and body building. Diet planning for footballers, athletes of basketball and volleyball. Diet planning for track and field athletes and ballet athletes. Diet planning for female athletes of basketball, volleyball and swimming.

NUTRITIONAL MANAGEMENT OF CLINICAL CONDITIONS I

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 6th
Level of course: S.M. - Compulsory
Prerequisites: Principles of Clinical Nutrition

AIM & OBJECTIVES

Understanding the basic concepts governing the interaction between diet and disease, modification of metabolic mechanisms and metabolic requirements, and the impact of these changes in the calculation of the dietary needs of patients. Familiarity with tools (methods) and evaluation indicators of nutritional status of the patient for early identification of nutritional risk and assess the effectiveness of dietary intervention.

OUTLINE

Diet and disease interaction. Modification of metabolic models (stress, sepsis, hyper catabolic states). Calculation needs depending on the metabolic model. Malnutrition in patients. Hospitalized patients. Risk factors for malnutrition. Effect of disease in nourishment. Implications of malnutrition on the body (its systems), in sickness and their outcome. Interaction of nutrition and drugs. Assessment of the nutritional status of patients. Assessment of the effectiveness of dietary treatment. Evaluation of nutrition in children. Nutritional support authorities. Technical assessment of the functional state of the intestinal tract. Estimation techniques of homeostasis of carbohydrates - lipids - proteins in artificial nutritional support. Assessment of levels of Fe, Ca, electrolytes and immune response in artificial nutritional support. Diet modification. Special diets. Classification. Enteral nutrition. Techniques for accessing the intestine. Specific solutions. Methods of decision making between different nutritional support options. Complications of artificial feeding. Precautions. Parenteral nutrition. Probiotics and fiber.

LABORATORY WORK

Taking a patient's medical history. Assessment findings (laboratory and clinical). Evaluation of anthropometric indicators and ranking metabolic model. Evaluation of biochemical nutrition indicators (carbohydrates, fats, proteins). Rating mineral status indicators, electrolytes, vitamins. Evaluation of immune status. Tests for documentation of adverse reactions to foods. Preparing for normal cases surgery. Respiratory quotient patient. Indirect calorimetry. Resting metabolism calculation. Calculation of daily needs depending on metabolic state. Calculation of daily needs depending on metabolic state. Diet planning for patients with stress, patients with sepsis, in other ultra-catabolic state. Familiarity with the technical infrastructure and the possibilities of artificial nutrition (pumps, catheters, artificial feeding solutions). Hospital organization chart. Food service responsibilities.

NUTRITION EDUCATION - HEALTH EDUCATION

Weekly teaching hours: 2Theory
Credits: 4
Typical Semester: 6th

Level of course: S. M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The acquisition of basic knowledge for counseling patients and population groups, as well as the design of nutrition education and health education at the community level.

OUTLINE

Nutritional therapy: Evaluation of nutritional needs and problems in population groups with common characteristics. Design, implementation and evaluation of nutrition education or intervention programs in schools and in the community. Health education: A conceptual approach, social and medical aspects of health education. Health education and prevention levels. Objectives and content tailored to public health problems in modern societies. Methods of health education (communication, educational, social organization and action). Strategy for high-risk populations. Design, implementation and evaluation of health education program. Legislative framework of health education. Organization of health education services in Greece.
LABORATORY WORK

Exercises for developing skills in the following sections: Methods of Health Education (communication, education, social action). Active - experiential teaching strategies in Health Education. Function, objectives and dynamics of the group. Activities of effective listening. Self-esteem: Self-reinforcement. Dramatization, role play to solve problems relating to health. Advertising and its role in shaping attitudes and health behaviors. Stages of behavioral change. Creation of teaching package (project) on the diet, which comprise actions - activities on balanced diet and material with images, fairy tales, games, etc. adapted to different age groups of the school community. Priorities and topics of health education programs in schools. Writing and presentation of individual and group work.

PSYCHOLOGY AND NUTRITION

Weekly teaching hours: 3Theory +1Laboratory
Credits: 4
Typical Semester: 6th
Level of course: S.M. – At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

The understanding of the subject of psychology and related fields of the human personality.

OUTLINE

The subject of Psychology. Psychological methods. Ethical implications of psychology. Main areas of Psychology. Basic approaches of Psychology. Feelings. Perceptions. Attention. Learning. Memory. Reconstruction. Thinking. Language. Feelings. Motives. Theories of personality. Attitudes. Stereotypes. Prejudices. Principles and applications of behavioral Psychology. Nutrition and mental health. Eating behavior disorders. Anorexia nervosa and bulimia. Psychological support and therapeutic approach to obesity. Psychological approach to eating disorders in childhood and adolescence.

LABORATORY WORK

Writing group or individual assays.

NOVEL FOODS

Weekly teaching hours: 3Theory +1Laboratory
Credits: 4
Typical Semester: 6th
Level of course: S.K.M. - At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

The familiarization of the students with the "Novel Foods" in the market. Understanding the new technologies with which these foods are produced and the familiarization with the raw materials derived from unconventional sources or with the food products containing novel ingredients.

OUTLINE

Definitions - Safety. The malnutrition problem in the third world. Legislation - The European Regulation on Novel Foods and labeling requirements. Unconventional protein sources and their use in various foods. Recovery of raw materials (proteins, carbohydrates) from the food industries waste and their use in food. Production of unicellular protein from food industry waste. Soya and its products. Whey protein recovery. Hydrolyzed proteins. Special products containing hydrolyzed proteins. Surimi, its production technology and relevant products. Sugar replacement compounds, sweeteners. Products made from sweetening compounds. Fat replacements, low-fat content products. Functional Foods, definition, examples, legal constraints of functional foods. Genetically modified foods.

LABORATORY WORK

Writing and presentation of group or individual projects on subjects of the theory. Exploring novel food in the Greek market. Visits to production and marketing units of novel foods.

QUALITY ASSURANCE IN DIETARY UNITS

Weekly teaching hours: 3Theory +1Laboratory
Credits: 3
Typical Semester: 6th
Level of course: B.E.L.Hs.M. - At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

Understanding the importance of Quality and Food Safety. Understanding and application of the International Quality Assurance Systems in food production plants.

OUTLINE

The terminology of Quality. Quality Control and Quality assurance, Quality Management, Quality System. Hazard Analysis Critical Control Points (HACCP). Introduction to HACCP methodology, principles of HACCP, application methodology of HACCP, examples of HACCP implementation in food plants. Rules of Good Manufacturing Practice (GMP). Introduction to the GMP, Recommended International Code of Practice, General Principles of Food Hygiene of

Codex Alimentarius, healthy food in accordance with Directive 93/43/EEC, application examples of GMP. The standard ISO 22000. Other quality assurance systems. Total Quality Management (TQM): The philosophy and methodology of TQM implementation, applications in food businesses.

LABORATORY WORK

Case studies of Quality Assurance and Food Safety implementation.

ORGANISATION AND MANAGEMENT OF DIETARY UNITS

Weekly teaching hours: 3Theory +1Laboratory
Credits: 3
Typical Semester: 6th
Level of course: B.E.L.Hs.M. - At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

Understanding the basic principles governing the organization and management of food plants and provide knowledge specific to the power plants, food plants, slimming salons, gyms, etc.

OUTLINE

In general about organization and management, about planning and decision making. Organizational Chart. Organization and operation of the nutrition department in a Hospital food preparation unit. Menu planning and food product development. Production planning. Costing of products. Supplies management. Factors of hospital diets.

LABORATORY WORK

Case studies of organization of food preparation units with special features (e.g. fast food, restaurant, hospital catering unit, school catering unit, hotel catering unit, e.t.c.).

FOOD LOSSES DURING FOOD PROCESSING

Weekly teaching hours: 3Theory
Credits: -
Typical Semester: 6th
Level of course: O.M. - Optional
Prerequisites: None

AIM & OBJECTIVES

The study of the basic mechanisms that alter positively or negatively the functionality and the bioavailability of nutrients of food during processing and their preservation.

OUTLINE

Effects of storage, preservation and industrial methods of processing in food nutrients (cooling-freezing, heat treatment, fermentation, dehydration & hydration, additives, salting, ripening, smoking, radiation, microwaves). Effects of the method of preparation of food into its nutrients. Adding nutrients to foods and their metabolism. Effects of packaging materials and packaging techniques in food quality. Food nutrient interactions (water, salts, colloids, starch, proteins, fats, flavorings, additives).

7th Semester

MASS FOOD PRODUCTION

Weekly teaching hours: 3Theory +2Laboratory
Credits: 7
Typical Semester: 7th
Level of course: S.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Understanding the structure and functions in every mass food production unit, from the design of the building to the disposal of finished products.

OUTLINE

Types of catering units. Classification. Restaurants of all kinds. Hospital catering and hotel departments. Aviation and marine catering. Banquet Halls. Private clubs and group catering. Food Stores. Independent caterers. Structure and organization of the catering department at the hospital and hotel. Structure of the hospital services. The characteristics of the proper nutritional care in the nursing unit. Structure of the hotel services. The characteristics of proper dietary customer care. Building infrastructure of catering units. Prerequisites for the buildings and their surroundings. Maintenance of facilities. Hazards of contamination, pollution and deterioration of food. Biological hazards and cross contamination. Chemical hazards. Natural hazards. Plant and equipment hygiene. Hygiene of raw materials. Hygiene of the staff. Supply Department: developer Tasks. Domain mode. Methods and procedures of the Department of markets. Procedures for the development of qualitative and quantitative standards. Sources and modes of supply of raw materials. Reception section: Duties of the responsible. Domain mode. Methods and procedures of the Department of markets. Procedures for the development of qualitative and quantitative standards. Sources and modes of supply of raw materials. Reception section: Duties of the responsible. Conditions for proper functioning of the Department. Document preparation of the Department. Distribution of raw materials in warehouses. Storage of raw materials: design and storage equipment. Spatial arrangement of warehouses. Warehouse management. Proper storage rules in dry cargo warehouses, refrigerators and freezers. Export of raw materials to production departments: Points for special attention to the exportation of raw materials. Production departments: Production Systems. Distribution systems and serving. Required space and organization. Equipment requirements. Basic methods of cooking foods. Impact of handling and cooking methods in food nutrients. Packaging of final products: Properties of packaging materials. Environmental factors and packaging. Factors determining the type of packaging selected. Packaging of main foods. Preservation of final products: Good Hygienic Practice during storage. Preservation under refrigeration. Frozen preservation. Defrosting of food. Handling and distribution of final products: The loading station. Means of transport. Distribution through logistics companies. The franchising system at the disposal of the end products. E-commerce. Reheating of the final products: Devices and methods of reheating (conventional methods, microwaves, infrared radiation). Cleaning and sanitation in catering units. Requirements for installations and equipment. Requirements for cleaning and sanitation materials. Detergents. Disinfectants. Waste management: Management of solid, liquid and gaseous waste. Waste disposal. Legislative framework for environmental pollution. Quality in the catering facilities. The food production model in our country. The concept of Quality in the supply chain. Criteria of food Quality. Quality signals. Systems of quality assurance. Quality labels. Quality assurance systems.

LABORATORY WORK

Visits to food supply units or hospital food departments, hotels, educational institutions and in food processing plants (bread, meat, milk, vegetables, alcoholic beverages, etc.). Writing individual or group assignments after each visit.

NUTRITIONAL MANAGEMENT OF CLINICAL CONDITIONS II

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 7th
Level of course: S.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

The analytical approach of nutritional care of patients, hospitalized and non-hospitalized, in the context of the special dietary intervention and nutritional support upon the disease. Setting personalized goals for the patient's nutritional care of the patient via a specialized diet plan that has become an ever more important component of integrated healthcare systems.

OUTLINE

Introduction to the concepts of Medical Nutrition Therapy (Medical Nutrition Therapy, MNT). Dietary advice in digestive diseases (Deficiency upper digestive tract syndrome Dumping, Gastro esophageal reflux disease, peptic ulcer, gastritis, Dyspeptic complaints, Intestinal failure, inflammatory bowel disease). Lactose intolerance, Celiac Disease, Diet after bariatric surgery, Adverse reactions to foods, Pancreatic insufficiency. Cystic fibrosis, liver failure-cholestasis. Respiratory failure-Heart Failure. Renal insufficiency (acute-chronic). Immunodeficiency (including fundamentals immune nutrition). Psychiatric / dietetic disorders, anorexia nervosa, Nutritional support in Geriatrics, Diabetes. Congenital metabolic diseases (basic principles only, not analysis because of the particularities and specificity required).

LABORATORY WORK

Controlled diet planning. Diets of regulated residue. Volume-controlled diets. High caloric diets. High protein diets. High caloric diets (renal failure, hepatic failure). Avoidance diets (lactose, milk protein, gluten, fructose). Low fat diets (pancreatitis). Customizing distribution requirements in special diet meals. Prioritization exercises in patients with complicated health problems.

DIET AND OBESITY

Weekly teaching hours: 2Theory +1Laboratory
Credits: 3
Typical Semester: 7th
Level of course: S.M. - Compulsory
Prerequisites: Biochemistry of Macronutrient Metabolism

AIM & OBJECTIVES

To engage the student with the newest theories and learn how obese patient should be treated

OUTLINE

Causes of Obesity. Methods for determining obesity. Effects of obesity on health. The role of energy intake in obesity. Resting metabolism and obesity. Physical activity and obesity. Reduced calorie diets. Physical activity and obesity. Diets with different nutrient profile, ketogenic diets, monomeric diets cyclical diets, liquid diets (formula), pre-weighed diets, various diets (Cambridge, Atkins, Stillman, Beverly Hills, Pritikin, Rotation, F-plan, optilast, etc.). Metabolic reactions on weight loss. Food preferences and weight control. Psychological and social factors and obesity. The importance of dietary treatment of obesity and the context of the therapeutic approach.

LABORATORY WORK

Writing and presentations topics: Dietary treatment of obesity, Obesity and exercise, Pharmaceutical treatment of obesity, Bariatric, Dietary treatment of obesity after bariatric, Obesity and pregnancy. Obesity in infancy, childhood obesity, Obesity in adolescence, adult obesity, obesity of the elderly, obesity and diabetes mellitus, obesity and dyslipidemia, obesity and hypertension, obesity and cardiovascular disease, and other current issues.

Two visits to Thessaloniki's hospital obesity clinics. Writing and presentation of work over an incident of obesity.

NUTRITIONAL SUPPORT OF PEDIATRIC PATIENT S

Weekly teaching hours: 3Theory +3Laboratory
Credits: 7
Typical Semester: 7th
Level of course: S.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Introduction to the concepts of metabolic planning and the importance of perinatal nutrition. The analytical approach to nutrition assessment and nutritional care of pediatric patients, hospitalized or not, under the special dietary intervention and nutritional support according to the disease.

OUTLINE

Metabolic programming. Pediatric patients at risk of malnutrition (at risk). Malnutrition in pediatric patients. Nutrition assessment. Comprehensive screening. Parameters. Absolute evaluation Z scores. Objective evaluation. Classification. Peculiarities of neonatology patients SGA, LGA. Peculiarities of infancy. Determination of nutritional needs of pediatric patients. Determination of specific needs depending on disease (loss, abnormal metabolic models). Ensure nutrition pathways, monitoring, and evaluation of the results. Enteral Parenteral Nutrition in pediatric patients. Complications. Peculiarities of pediatric patients regarding the utilization of nutrient substrates. Diet planning for pediatric patients. Examples. Congenital metabolic diseases. Diabetes in infants, children and adolescents. Pediatric surgical patient. Decisions to stop the nutritional support in pediatric patients. Ethical issues.

LABORATORY WORK ΕΡΓΑΣΤΗΡΙΟ

Evaluation of nutrition (weighing measurement, evaluation on the basis of reference curves and the WHO standards, z scores). Design of controlled diet. Diets of regulated residue. Volume-controlled Diets. High caloric diets. High protein diets (renal failure, hepatic failure). Avoidance Diets (lactose, milk protein, gluten, fructose). Adjusting diet in special requirements (Diabetes). Childhood Obesity, Children hypercholesterolemia.

BIOSTATISTICS IN NUTRITION

Weekly teaching hours: 2Theory
Credits: 3
Typical Semester: 7th
Level of course: G.K.M. - Compulsory
Prerequisites: None

AIM & OBJECTIVES

Simple linear regression and correlation. Prerequisites for their application, diagnostic criteria of linearity of the data, comparison of the regression slope and correlations. Predictive value of the regression, inverse prediction.

OUTLINE

Non-parametric tests: a) Classified variables: control of signs, the Mann-Witney, the Wilcoxon, the Kruskall-Walis and Mood, control Friedman, control of Spearman and Kendall (graduated correlation) control of Page (graduated regression). b) Categorical variables: x2 control and audit G, tables of any 2x2, check the McNemar, Q control of Cochran, log-linear models, affinity markers.

LABORATORY WORK

Applications using PC software (MINITAB, SPSS, STATISTICA, etc.).

ECONOMICS AND NUTRITIONAL POLICY

Weekly teaching hours: 2Theory +1Laboratory
Credits: 3
Typical Semester: 7th
Level of course: B.E.L.Hs.M. – At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

Acquisition of fundamental knowledge on economic, social, cultural, etc. factors that influence the formation of dietary model of a population, the problems of the world food and implementing national nutrition policy programs aimed at improving the level of health and economic development of the country.

OUTLINE

Global nutrition: demography, economic development, food production, fuels, economic theories. Dietary model developments in relation to income, Social laws, Supply, demand, price elasticity, nutrition and productivity. Development of nutrition in Greece (timeless), development costs, food consumption. Impact on health and the economy. Socio-cultural effects (family, socialization, media, advertising, marketing, lifestyle, religious etc. effects in the diet). Food and nutrition policy at national level (agriculture, food industry, availability, price policy, legislation, education, research). Nutritional surveillance systems (purpose, sources of information, organization chart). Models of consumption.

LABORATORY WORK

Exercises to develop skills in the following sections: processing and presentation of data on food consumption. Food balances. Family budgets. Economic indicators related to the diet nationally. Processing of data of the national statistical service. Models and consumption trends in European and developing countries-comparisons. Nutritional support programs organization in emergencies and disasters. Search and study data from OECD FAO databases. Writing and presentation of individual and common assignments.

ERGOMETRY AND NUTRITION

Weekly teaching hours: 2Theory +1Laboratory
Credits: 3
Typical Semester: 7th

Level of course: S.K.M. – At the option compulsory
Prerequisites: None

AIM & OBJECTIVES

The acquisition of practical skills for measuring biological factors that affect physical performance.

OUTLINE

Object of Ergometry, diet and increase of athletic performance, energy transfer, measurement of energy expenditure, determination of anaerobic capacity, determination of aerobic capacity, muscle strength determination, flexibility determination, determination of body composition, determination of the stress of exercise on cardiovascular diseases.

LABORATORY WORK

1. Reliability of measurements
2. Calculation of basic metabolism
3. Determination of Daily Energy Expenditure
4. Evaluation of the direct power system
5. Evaluation of the aerobic energy system
6. Determination of muscle strength
7. Determination of body composition I
8. Determination of body composition II
9. Calculation of weight loss rate
10. Calculation of the exercise stress

8th Semester

THESIS

PRACTICAL TRAINING