

Course Title	Functional Foods				
Course Code	ABF 457				
Course Type	Theory				
Level	Undergraduate				
Year / Semester	Fall Semester/7th Semester/4th year				
Teacher's Name	Dr. George Botsaris				
ECTS	5	Lectures / week	2x1.5hrs	Laboratories / week	
Course Purpose and Objectives	<p>This course deals with the functionality of food ingredients from a physicochemical, organoleptic and bioactive point of view. Categories of ingredients and foods, molecular structure and functionality relationships will be presented, as well as the mechanisms of action of the bioactive ingredients in the human body.</p> <p>The ways of protecting the bioactive ingredients in the food matrix and their stability will also be presented. Reference will also be made to the importance of the safety and efficacy of functional foods in conjunction with labeling and nutrition claims legislation.</p> <p>Impacts from excess or deficiency of nutrients, needs of specific population groups, and reference values will also be presented, alongside the effect of food processing technologies on the nutritional value of foods.</p>				
Learning Outcomes	<p>Upon successful completion of the course the student will be able to:</p> <ul style="list-style-type: none"> <li>• Categories functional foods and describe their characteristics</li> <li>• Understands the properties of functional foods and their importance in modern nutrition</li> <li>• Provide examples of functional product groups and their technological characteristics</li> <li>• Understands the importance of technology in the production and development of functional products</li> <li>• Explain the basic principles for designing new functional products</li> <li>• Apply the importance of safety and effectiveness in functional foods</li> <li>• Is aware of the legislation governing food labeling and nutrition claims</li> </ul>				
Prerequisites	No	Required	No		

Course Content	<p>LECTURES</p> <p><b>Introduction</b></p> <p>Definitions</p> <p>Relationship between food, nutrition and health</p> <p><b>Functional products</b></p> <p>Probiotics and prebiotics</p> <p>Nutritional supplements</p> <p>Infant formulas</p> <p>Plant-origin functional foods</p> <p>Animal-origin functional foods</p> <p><b>Nutritional aspects of functional foods</b></p> <p>Effects of dietary fiber</p> <p>Enrichment of foods with Vitamins and Minerals</p> <p>Antioxidants and their effect on human health</p> <p>Phytochemicals and their effect on human health</p> <p><b>Technological issues of functional foods</b></p> <p>Thermal and non-thermal preservation methods</p> <p>Taste and flavor enhancement systems</p> <p>Measurements of nutritional and chemical ingredients and their bioavailability</p> <p><b>Safety, effectiveness and design of functional foods</b></p> <p>Evaluation of safety and effectiveness</p> <p>Design and development of novel functional foods</p> <p><b>Legislation on labeling and nutrition</b></p>
Teaching Methodology	<p>Lectures using audiovisual media</p> <p>Active live engagement in learning activities, discussion and problem solving</p> <p>Solving critical thinking questions and problems</p> <p>Written group work and oral presentation</p> <p>Individual meetings for work guidance and problem solving</p> <p>Autonomous study utilizing bibliography and reliable websites available on the internet</p> <p>Two educational visits to food industries and farm establishments</p>

Bibliography	<ol style="list-style-type: none"> <li>1. Power point presentations and teaching material</li> <li>2. Essentials of Functional Foods, Mary K. Schmidi, Theodore P. Labuza, Aspen Publication, 2000, ISBN 0-8342-1261-7</li> <li>3. Functional Foods and Biotechnology, K. Shetty, G. Paliyath, A.L. Pometto, R.E. Levin, CRC Press, 2006, ISBN 0849375274</li> <li>4. Complete Food and Nutrition Guide, Roberta Larson Duyff, American Dietetic Association, 2006, ISBN 0470041154</li> <li>5. Regulation of functional foods and nutraceuticals, Clare M. Hasler, IFT Press, Blackwell Publishing, 2005, ISBN 0813811775</li> <li>6. Probiotic Dairy Products, A. Y. Tamime, Blackwell Publishing, 2005, ISBN 1405121246</li> </ol>
Assessment	<p>Final exam: 55%</p> <p>Midterm exam: 30%</p> <p>Individual assignment: 10%</p> <p>The examination papers include multiple choice questions, short essay questions and critical thinking questions</p>
Language	