

MÓDULO	SUBJECT	COURSE	SEMESTER	CREDITS	TIPO
Food Security	Food Parasitology	2º	2º	6	Obligatory
PROFESSOR(S)			TUTORING CONTACT INFORMATION (Address, phone number, email, etc)		
<ul style="list-style-type: none"> Victoriano Díaz Sáez 			Department of Parasitology, Pharmacy Faculty. diazsaez@ugr.es		
			TUTORING HOURS		
			Tuesday, Wednesday and Thursday, from 10:30 a.m. to 12:30 a.m.		
DEGREE			OTHER DEGREES		
DEGREE IN SCIENCE AND FOOD TECHNOLOGY			DEGREE IN HUMAN NUTRITION AND DIETETICS		
PREREQUISITES AND RECOMENDATIONS (IF THEY APPLY)					
<ul style="list-style-type: none"> Have an adequate knowledge of English language It is recommended that students have completed the subjects of Biology, Chemistry and Physics during secondary school. 					
BRIEF DESCRIPTION OF CONTENT (ACCORDING TO MEMORY OF DEGREE VERIFICATION)					
<ul style="list-style-type: none"> Fundamental concepts in Parasitology. Importance of parasites in foods: effects on human health; socio-economic impact. Study of the main parasites that are transmitted to humans through food (meat, fish, water, fruits and vegetables). Parasites on food: detection and study, observation and identification methods. 					
COMPETENCIAS GENERALES Y ESPECÍFICAS					
<ul style="list-style-type: none"> GENERAL AND SPECIFIC SKILLS A. General skills (CT): T2; T3; T4; T6; T7; T9; T10; T11 					



- B. Specific skills degree (CE): E1; E3; E7; E8; E14; E15; E16

OBJECTIVES (EXPRESSED AS A TEACHING RESULT)

- To know and understand:
 - The Morphology and biology of the main species of parasites associated with food of plant, water and animal origin, emphasizing the role of all of them as a vehicle of parasitosis in man.
 - The main ways in which parasites get into food.
 - The methods of detection and identification of parasitic stages in food.
 - Control measures and prophylaxis
 - Alterations and food spoilage due to the presence of parasites.
 - To be able to relate:
 - The knowledge acquired on morphology and life cycle of the parasites with their diagnosis.
 - The knowledge gained about the parasites' life cycle with their epidemiology, control and preventive measures against diseases.

DETAILED SYLLABUS OF THE SUBJECT

THEORETICAL SYLLABUS

UNIT 1. Parasitology in the Science and Food Technology degree. Importance of parasites in food: despoiling action on raw materials and food. Effects on human health. Socio-economic impact. Fundamental concepts in Parasitology.

UNIT 2. General characteristics of large groups of parasites. General life cycles of parasites.

UNIT 3. Arthropods associated with stored products. Study of most important insects. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

UNIT 4. Study of mites present in food. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

UNIT 5. Parasites associated with fishery products. Protozoa: Study of most important species. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

UNIT 6. Helminths parasites associated with fish products: Study of most important species. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

UNIT 7. Parasites present in meat slaughter and derivatives. Protozoa: Study of species of interest. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.



UNIT 8. Study of helminth species associated with slaughter and meat derivatives. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures. Dipteran larvae.

UNIT 9. Waterborne parasites. Protozoa: Study of most important species. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

UNIT 10. The most significant species of helminth parasites associated with water: Study. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

UNIT 11. Protozoan parasites present in fruits and vegetables: most significant species. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

UNIT 12. Fruits and vegetables as a vehicle for helminth parasites: study of the main species. Morphology and biology. Identification methods. Epidemiology. Control and prevention measures.

PRACTICAL SYLLABUS

Seminars / Workshops

- Problems and resolution on fundamental concepts in Parasitology
- Problems and resolution on parasitic epidemiology
- Problems and resolution on methods of identification and control measures and prevention of parasitic diseases transmitted to humans through food (water, meat, fish, fruits, vegetables)

Laboratory Practice

Practice 1. Methods of detection of parasites in water, fruits and vegetables. Observation and identification.

Practice 2. Muscle digestion of meat from slaughter animals. Observation and identification of parasites.

Practice 3. Study of the viscera of slaughter animals. Observation and identification of parasites.

Practice 4. Muscular digestion of fish. Observation and identification of parasites in the muscle tissue and viscera.

Practice 5. Methods of detection and study, observation and identification of eggs, larvae and adults of arthropods in grain, flour, cheese and ham.

BIBLIOGRAPHY

FUNDAMENTAL BIBLIOGRAPHY

Useful for all syllabus items. Available to students.

- Adroher, F.J.; Campos, M.; Hueli, L. (coord.). 2004. Guía Práctica de Parasitología. Facultad de Farmacia. Universidad de Granada. 175 pp.
- Beaver, P.C., Jong, R.C., Cupp, E.W. 1986. Parasitología Clínica. 2ª edn Ed. Salvat. Barcelona.



- Bogitsh, B., Cheng, T.C. 1998. Human Parasitology. Academic Press. Orlando.
- Cordero del Campillo, M., Rojo Vázquez, F.A. (coord.) 2000. Parasitología Veterinaria. MacGraw-Hill Interamericana de España. Madrid.
- Doyle, M.P., Beuchat, L.R., Montville, T.J. (eds.) 1997. Food Microbiology. Fundamentals and Frontiers. ASM Press.
- Gállego Berenguer, J. 2003. Manual de Parasitología. EUB, Barcelona.
- Hayes, P.R. 1993. Microbiología e higiene de los alimentos. Ed. Acribia, S.A. Zaragoza.
- Hui, Y.H., Gorham, J., Murrell, K.D., Cliver, D.O. 1994. Foodborne disease handbook diseases caused by Viruses, parasites, and fungi. Vol. 2. Ed. Marcel Dekker, Inc.
- Jay, J.M. 1994. Microbiología moderna de los alimentos. 3ª edn. Ed. Acribia, S.A. Zaragoza.
- Last, J.M. 1989. Diccionario de Epidemiología. Salvat Editores, S.A. Barcelona.
- Mehlhorn, H. 1988. Parasitology in focus. Ed. Springer-Verlag. Berlín.
- Peters, W., Gilles, H.M. 1989. A colour atlas of Tropical Medicine and Parasitology. 3ª edn. Wolfe Medical Publications Ltd. Londres. -Roberts, L.S., Janovy, J. 2000. Foundations of Parasitology. 6ª ed. McGraw-Hill Publishers, Boston.
- Robinson, W.H. 1996. Urban entomology. Insect and mite pests in the human environment. Ed. Chapman and Hall. Londres.
- Rondanelli, E.G., Scaglia, M. 1993. Atlas of human Protozoa. Atlante dei Protozoi umani. Ed. Masson S.P.A. Milán.
- Subramanyam, B., Hagstrum, D.W. 1996. Integrated management of insects in stored products. Ed. Marcel Dekker.

- COMPLEMENTARY BIBLIOGRAPHY
- It will be recommended to students as independent work that have to develop.

RECOMENDED LINKS

- <http://www.dpd.cdc.gov/dpdx/>
- <http://www.who.int/es/index.html>
- <http://www.who.int/tdr/>
- <http://www.biosci.ohio-state.edu/~parasite/home.html>
- <http://www.cdfound.to.it/>
- <http://www.aan18.dial.pipex.com/urls.htm>

METODOLOGÍA DOCENTE

ACTIVITY PROGRAM										
Segundo cuatrimestre	Temas del temario	Actividades presenciales (NOTA: Modificar según la metodología docente propuesta para la asignatura)						Actividades no presenciales (NOTA: Modificar según la metodología docente propuesta para la asignatura)		
		Sesiones	Sesiones	Exposiciones	Tutorías	Exámenes	Etc.	Tutorías	Estudio y	



		teóricas (horas)	prácticas (horas)	y seminarios (horas)	colectivas (horas)	(horas)		individuales (horas)	trabajo individual del alumno (horas)		
	1-12	38	14	1	2	5		1	80		

EVALUATION (INSTRUMENTS OF EVALUATION, EVALUATION CRITERIA AND PERCENTAGE OF FINAL GRADE, ETC.)

- Mixed type written exam. Choice questions, with concise answers, and resolution of clinical cases.
- 1 Review of practices
- 2 Autonomous work done
- 3 Work exposition
- 4 Assistance and participation in classroom activities during the course.
- Evaluation criteria
 - Final grade: The final grade will be the compendium of the work done during the course in scheduled activities.
 - It will consider the following criteria
 - A) Written tests about the contents of the theoretical program
 - B) Practical classes
 - C) Autonomous work and its exposition, if any
 - D) Assistance and participation in classroom activities
 - E) Participation in forums about topics on the syllabus
- Assessment tools
 - Control (1 hour): March 14th, 2019
 - Final exam (2 hours). May 28th, 2019. 8:30 h.
 - Extraordinary (2 hours). July 2th, 2019. 8:30h
 - Practical classes: Mandatory, and must be passed in order to take the final exam (1 hour).
- Final qualification. Percentages
 - Examination note:
 - Elimination control with a rating close to the notable (45%) + final control (rest of the subject) 45% + 10% practical classes and other activities.
 - Practical classes: Up to a maximum of 0.5 points on the average of the exam
 - Other activities (exercises, ...): Up to a maximum of 0.5 points on the average of the exam



DESCRIPTION OF THE EVIDENCE THAT WILL BE PART OF THE FINAL UNIQUE EVALUATION ESTABLISHED IN THE "REGULATIONS OF EVALUATION AND GRADING OF THE STUDENTS OF THE UNIVERSITY OF GRANADA"

• Final single evaluation.

- In accordance with article 8.2 of the "Regulations for evaluation and qualification of the students of the UGR" approved on May 20, 2013: "To take advantage of the final single evaluation, the student, in the first two weeks from The date of the student's enrollment will be requested from the Director of the Department, who will transfer it to the corresponding faculty, stating and stating the reasons for not being able to follow the continuous evaluation system. "
- Students who take part in the final single evaluation system must complete the laboratory practices provided in the teaching guide of the subject. The final single evaluation will consist of a written examination of the contents of the theoretical program of the subject, and an examination of the contents of the practice program (after completing the internships), which may include development or multiple choice questions, problems numerical, as well as the experimental practice in the laboratory, for the examination of the practice program.
- To pass the course, it is essential to pass the theoretical content exam, obtaining at least a score of 5 out of 10. It is also essential to pass the practice exam, obtaining at least a score of 5 out of 10.
- The final grade of the subject will be obtained from the theory note, which will be up to 90% of the final grade, and the practice note that will represent up to 10% of the final grade

ADDITIONAL INFORMATION

Information about the subject can be consulted on the website of the Department of Parasitology:
<http://www.ugr.es/~parasito>

