

TEACHING GUIDE OF THE SUBJECT
FOOD PARASITOLOGY

Academic course 2017-2018
(Date last update: June 12/2017)
(Date of approval in Department Council: June 12/2017)

MÓDULO	SUBJECT	COURSE	SEMESTER	CREDITS	TIPO
Food Security	Food Parasitology	2º	2º	6	Obligatory
PROFESSOR(S)			TUTORING CONTACT INFORMATION		
<ul style="list-style-type: none"> Victoriano Díaz Sáez 			Department of Parasitology, Pharmacy Faculty. diazsaez@ugr.es		
			TUTORING HOURS		
			Monday, Tuesday and Thursday of 11'30 to 13'30 hours		
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>

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): April 13th, 2018
- Final exam (2 hours). May 17th, 2018. 8'30 h.
- Extraordinary (2 hours). June 26th, 2018. 11'30h
- Practical classes: Mandatory, and must be passed in order to take the final exam (1 hour).

● Calificación final. Porcentajes.

- Nota de exámenes:
- Control eliminatorio con calificación cercana al notable (45%)+ control final (resto de la materia) 45% + 10% clases prácticas y otras actividades.
- Clases prácticas: Hasta un máximo de 0,5 puntos sobre la media de examen
- Otras actividades (trabajos, ejercicios, ...): Hasta un máximo de 0'5 puntos sobre la media de examen

DESCRIPCIÓN DE LAS PRUEBAS QUE FORMARÁN PARTE DE LA EVALUACIÓN ÚNICA FINAL ESTABLECIDA EN LA "NORMATIVA DE EVALUACIÓN Y DE CALIFICACIÓN DE LOS ESTUDIANTES DE LA UNIVERSIDAD DE GRANADA"

● Evaluación única final.

- De acuerdo con el artículo 8.2 de la "normativa de evaluación y calificación de los estudiantes de la UGR" aprobada el 20 de mayo de 2013: "Para acogerse a la evaluación única final, el estudiante, en las dos primeras semanas a partir de la fecha de matriculación del estudiante, lo solicitará al Director del Departamento, quien dará traslado al profesorado correspondiente, alegando y acreditando las razones que le asisten para no poder seguir el sistema de evaluación continua".
- Los alumnos que se acojan al sistema de evaluación única final deberán hacer las prácticas de laboratorio previstas en la guía docente de la asignatura. La evaluación única final constará de un examen escrito de los contenidos del programa teórico de la asignatura, y un examen de los contenidos del programa de prácticas (tras la realización de las prácticas), que podrá incluir preguntas de desarrollo o de opción múltiple, problemas numéricos, así como la realización experimental de alguna práctica de laboratorio, para el examen del programa de prácticas.
- Para aprobar la asignatura es imprescindible aprobar el examen de contenidos teóricos obteniendo como mínimo una puntuación de 5 sobre 10. Así mismo es imprescindible aprobar el examen de prácticas obteniendo como mínimo una puntuación de 5 sobre 10.
- La nota final de la asignatura se obtendrá de la nota de teoría, que supondrá hasta el 90% de la nota final, y de la nota de prácticas que supondrá hasta el 10% de la nota final

ADDITIONAL INFORMATION

<http://www.ugr.es/~parasito>

