

Academic Year/course: 2022/23

60567 - Animal production systems

Syllabus Information

Academic Year: 2022/23

Subject: 60567 - Animal production systems

Faculty / School: 201 - Escuela Politécnica Superior

Degree: 546 - Master in Agricultural Engineering

ECTS: 9.0

Year: 1

Semester: Second semester

Subject Type: Compulsory

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The learning process that has been designed for this subject is based on the following:

The subject is oriented in the instruction and learning of the main factors that intervene and influence the exploitation systems and production processes of alternative animal species as well as those involved in the manufacture of compound feed. The fundamental approach of theoretical classes has been combined with a set of practical activities that allow a better understanding of the technologies and at the same time show the applicability of the acquired knowledge.

For a better follow-up of the learning process, students will be encouraged to use the tutorial hours through different systems and modalities: conventional tutorials and more specific tutorials related to the practical work.

4.2. Learning tasks

The program offered to the student to help him/her achieve the expected results includes the following activities...

- Participative lectures
- Practical cases and problems
- Laboratory practices
- Assignments: elaboration and presentation of works related to production systems with alternative species.
- Visits

In relation to Agenda 2030, both the theoretical agenda addressed in the course and the practices, visits and assignments that the student will carry out are closely related to SDGs 2, 9 and 12, by promoting more efficient and sustainable livestock farming (see [FAO. 2019. The livestock sector in the world: Transforming the livestock sector through the Sustainable Development Goals. Summary. Rome. 12 pp. Available at <http://www.fao.org/3/ca1177es/CA1177ES.pdf>]).

4.3. Syllabus

COURSE SYLLABUS

Theory syllabus

MODULE A

Block 1: Introduction

- 1- Systems, properties, factors that determine them. Efficiencies of systems.
- 2- Management, key functions. Technical management. Indexes, their importance.

Block 2: Feed manufacturing

- 3- Situation of the compound feed industry sector. Basic legislation on animal feed. Types of feed.
- 4- Raw materials. Nutritional values and limits of use. Cereals and by-products, vegetable protein concentrates, fibrous feeds, animal by-products, fats and oils and additives.
- 5- Feed manufacture: Formulation. Processes: milling, mixing, granulation, new technologies.

Block 3: Nutrition and Health

- 6- General concepts of pathology, diseases. Zoonoses
- 7- Nutrition and health: intestinal health.

MODULE B

Block 4: Livestock Agrosystems

- 8- Beekeeping
- 9- Pig Production Agrosystems
- 10- Poultry production agro-systems
- 11- Ruminant production agro-systems

Practical syllabus

Practical cases and problems:

- 1- Calculation of nutritional needs of monogastrics in different physiological phases.
- 2- Feed formulation with Comfeed program.
- 3- Cases on farm management, analysis and interpretation of results.

Laboratory practices:

- 1- Recognition of raw materials for compound feed.
- 2- Quality control aspects of these raw materials.
- 3- Grain size control
- 4- The use of material and utensils used in beekeeping will be exposed and demonstrated.
- 5- Quality analysis of products (honey, etc.) will be carried out.

Assignments: elaboration and presentation of assignments related to alternative species.

Visits (evaluable) to:

- 1- Feed factory
- 2- Farms/farms (visits to some types of livestock farms may be affected by biosecurity conditions).

In the event that the visits cannot be carried out due to force majeure, they will be substituted by a series of videos provided for viewing.

4.4. Course planning and calendar

Provisional course planning

Week	Classroom Activity	Autonomous work	Total
1	6	9	15
2	6	9	15
3	6	9	15
4	6	9	15

5	6	9	15
6	6	9	15
7	6	9	15
8	6	9	15
9	6	9	15
10	6	9	15
11	6	9	15
12	6	9	15
13	6	9	15
14	6	9	15
15	6	9	15
Total hours	90	135	225

4.5. Bibliography and recommended resources

- BB** Angulo Asensio, Eduardo. Tecnología de fabricación de piensos / Eduardo Angulo Asensio y Francisco Puchal Mas. Lleida : Paperkite Editorial , D.L. 1995
- BB** Fontanillas Pérez, Juan Carlos. El caracol y la helicultura / J.C. Fontanillas Pérez, Isabel García-Cuenca Ariati. Madrid [etc.] : Mundi-Prensa, 2002
- BB** Genética, patología, higiene y residuos animales / coordinador y director Carlos Buxadé Carbó ; con la participación de 29 autores. Madrid [etc.] : Mundi-Prensa, 1995
- BB** Jean-Prost, Pierre. Apicultura : conocimiento de la abeja : manejo de la colmena / Pierre Jean-Prost, con la colaboración de Paul Medori. 3ª ed., rev. y ampl. Madrid [etc.] : Mundi-Prensa, 1989
- BB** La gestión en la explotación ganadera / con la participación de 31 profesionales ; coordinador Carlos Buxadé Carbó. Madrid [etc.] : Mundi-Prensa, 2003
- BB** Manual de microscopía de piensos + 1 CD / Roser Sala, Ana Cristina Barroeta, (coords.). Bellaterra, Barcelona : Universitat Autònoma de Barcelona, 2003
- BB** Tablas FEDNA de composición y valor nutritivo de alimentos para la fabricación de piensos compuestos / [coordinada por] C. de Blas, G.G. Mateos y P.G. Rebollar ; en colaboración con G. Santomá, J. Méndez, R. Carabaño ; patrocinadas por Elanco Valquímica S.A. [y] Instituto Nacional de Investigación Tecnología Agraria y Alimentaria (INIA). 3ª ed. [Madrid] : Fundación Española para el Desarrollo de la Nutrición Animal, 2010

- BC** Benedetti, Lorenzo. Apicultura : el individuo, la colectividad y el medio (...) / Lorenzo Benedetti, Lucilla Pieralli ; traducido y adaptado de la segunda edición italiana por Juan Vivanco. Barcelona : Omega, D.L. 1990
- BC** Fellows, Peter. Tecnología del procesado de los alimentos : principios y prácticas / Peter Fellows ; traducido por Francisco Javier Sala Trepal [1a. ed.]. Zaragoza : Acribia, D.L. 1993
- BC** Fundación Española para el Desarrollo de la Nutrición Animal. Curso de especialización (9. Influencia del procesado sobre el valor nutritivo de materias primas y piensos terminados : IX Curso de especialización tecnología y nutrición : Barcelona, 8 y 9 de noviembre de 1993 / obra colectiva y coordinada por Paloma García Rebollar ... [et al.]. [Barcelona?] : FEDNA, D.L. 1993
- BC** Kay, Ronald D. Farm management : planning, control, and implementation / Ronald D. Kay. 2nd ed. New York [etc.] : McGraw-Hill Book Company, 1986
- BC** Patología médica veterinaria : libro de texto para la docencia de la asignatura / edición coordinada por : Luis Eusebio Fidalgo Alvarez ... (et al.). León : Universidad de León ; Santiago : Universidad de Santiago de Compostela ; Zaragoza : Universidad de Zaragoza, 2003
- BC** Pérez Arellano, José Luis. Manual de patología general / José Luis Pérez Arellano, 7a. ed. Ámsterdam ; Barcelona ; Madrid [etc.] : Elsevier Masson, D.L. 2013
- BC** Wadsworth, J. Análisis de sistemas de producción animal. Vol. 1, Las bases conceptuales / por J. Wadsworth. Roma : Organización de las Naciones Unidas para la Agricultura y la Alimentación, 1997

LISTADO DE URLs:

de Blas, C., Mateos, G.G., García-Rebollar, P. (2010). Tablas FEDNA de composición y valor nutritivo de alimentos para la fabricación de piensos compuestos. Madrid: Fundación Española para el Desarrollo de la Nutrición Animal
[\[http://www.fundacionfedna.org/ingredientes-para-piensos\]](http://www.fundacionfedna.org/ingredientes-para-piensos)

Rebollar, P.G., Mateos, G.G., de Blas, C. (1993). Influencia del procesado sobre el valor nutritivo de materias primas y piensos terminados en IX Curso de especialización tecnología y nutrición. Barcelona: Fundación Española para el Desarrollo de la Nutrición Animal
[\[http://www.fundacionfedna.org/publicaciones_1993\]](http://www.fundacionfedna.org/publicaciones_1993)

The updated recommended bibliography can be consulted in:<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=60567>