**PRODUCTS FROM FARM ANIMALS**

## Prof. Riccardo Negrini

***Course aims and intended learning outcomes***

The world population will significantly increase by 2050, from seven million to nine million inhabitants, with the highest rate in developing countries. Accordingly, the demand for animal products is expected to increase between 50 and 70%, although with differences between all regions. At least one-third of the daily protein requirement of the nutritional recommendations should be derived from animal proteins. Also, meat, fish, milk, and eggs, are a valuable source of essential amino acids, micronutrients, and vitamins.

However, the rising concern about environmental sustainability, global warming, animal welfare, food security, and safety requires a shift of the production paradigm towards the so-called “sustainable intensification.”

This course will explore current livestock food production (population growth, urbanization, emerging affluence, resource constraints, and underlying biological limits), focusing on dairy, meat, eggs, honey, and aquaculture. Each major food animal species (dairy, swine, beef, and poultry) will be investigated in terms of quality of their production, life cycles, and physiology, constraints to production, production model, and emerging societal issues.

***Knowledge and understanding***

Through interactive front lessons and discussions, the student will develop a detailed understanding of environmental, social, and economic factors across livestock sectors and products and identify specific issues relating to milk, meat, eggs, and aquaculture.

The knowledge acquired will be of particular use to professionals and relevant to anyone across the food industry interested in animal production and production systems.

***Applying knowledge and understanding***

By the end of the course, participants will be able to:

- Describe the historical and geographic origin and distribution of livestock species and breeds

- Critically evaluate the challenges and opportunities facing different livestock production sectors

- Critically evaluate measures to improve the quality, sustainability, welfare of a livestock production system

- Describe a set of animal products in terms of quality and physio-chemical features.

- Use appropriate tools to identify reliable information and literature on this topic

***Critical thinking***

The lessons are designed to improve the student’s ability to:

- Form independent opinions, develop personal ethics and confidence

- Evaluate the credibility and reliability of sources of information.

- Establish which information is most relevant to the problem at hand.

- Improve decision-making skills

***Communication skills***

The course, fostering active interactions and team-working, will empower the ability to:

- Connect and interact with others

- Get the most favourable outcomes from discussions

- Know how to deal with problems, give constructive criticism and handle complaints.

***Learning skills***

At the end of the course, the student will be able to:

- Critically assess the own level of knowledge and skills in topics related to animla productions

- critically survey various source of information to deepen and improve their knowledge on specific topics or to keep updated the knowledge on the technical and scientific novelties

***COURSE CONTENT***

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| Livestock production systems: a worldwide overview | 0.5 |
| Milk and milk production | 1.5 |
| Beef and beef chains | 1.5 |
| Eggs and poultry | 1.0 |
| Honey quality and production | 0.5 |
| Ethical features of animal production: environmental sustainability and welfare | 0.5 |
| Traceability and certification of origin in animal products | 0.5 |
| P**ractical** | 1.0 |

***READINGS LIST:***

J.R. Campbell-M. Douglas Kenealy- K.L Campbell:  *Animal sciences. the biology, care and production of domestic animals.* 2010 *4th edition WAvELAND Press*

The slide in power point and the teaching materials used during lessons will be made available through black board.

***TEACHING METHOD***

The course will consist of lectures given by the instructor supported by PowerPoint slides and other materials. The lesson will cover the whole syllabus and follow a sequential *iter*. Seminars on specific topics provided by invited key speakers will complement the lectures.

A series of practical exercises and an educational visit to the University's experimental farm will complete the course and provide the opportunity to put into practice some of the theoretical notions acquired.

***ASSESSMENT METHOD AND CRITERIA***

The final exam consists of an interview in which where the candidate is asked to answer three main questions spanning the whole course syllabus on average. The candidate is also asked to prepare and discuss a short PowerPoint presentation (10 slides max) on a topic of his choice related to the course's main arguments.

Each main question counts for 1/3 of the final vote expressed in thirtieths.

Adequate understanding of the topics, acquisition of the appropriate technical language, and critical capacity to address questions and propose original solutions compose the assessment methods.

***NOTES AND PREREQUISITES***

Background knowledge of animal physiology and morphology, essential on livestock farming, and fundamentals of general and organic chemistry may help during the course.

***OFFICE HOURS FOR STUDENTS***

Prof. Riccardo Negrini is available to meet students after the lectures by appointment.