BIO-498

Entrepreneurship in food & nutrition science

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Cursus	Sem.	Type
Ing.-chim.	MA2, MA4	Opt.
Life Sciences Engineering	MA2, MA4	Opt.

Language of teaching	English
Credits	4
Withdrawal	Unauthorized
Session	Summer
Semester	Spring
Exam	During the semester
Workload	120h
Weeks	14
Hours	**4 weekly**
Lecture	2 weekly
Exercises	2 weekly
Number of positions	

Summary

Students will learn how nutrition science & food technology is applied to develop food products & diets to optimize health. Examples & case studies will cover novel food technologies, nutrition research on diet, macronutrients & bioactive ingredients, and regulatory & safety requirements.

Content

The course ambitions to :
-Provide fundamentals in nutrition, food sciences and food safety
-Initiate students to basics in scientific design, project management and communication/regulatory for food and nutrition R&D innovation
-Provide an integrative view on how these fundamentals are applied in an industry environment for new product development with practical examples and teamwork

Topics will be selected from societal challenges linked to nutrition and health using real life examples in areas such as maternal & infant nutrition to optimize first years of life, plant-based diets for flexi/vegetarians, sugar reduction and metabolic health, and cellular nutrition for sports nutrition & healthy aging. Knowledge and examples on nutrition science and the different steps of innovation in the food industry will be shared on the following topics:

- Nutrition science on carbohydrates, lipids, proteins & micronutrients
- Integration of food products in healthy diets
- Experimental biology for nutrition
- Discovery of novel bioactive ingredients
- Food science & technology (format, texture, taste)
- Food safety & quality
- Clinical trials in nutrition
- Intellectual property & patents
- Regulatory requirements & health claim development
- Project management (R&D sponsors & stake-holders, milestones, execution)
- Business environment & competitive landscape (markets, consumers, competitors)
- Financial market impacts for R&D (cost of goods, business models, product pricing)

Keywords

Food, nutrition, industry R&D, innovation, health, project/example-based learning, teamwork

Learning Prerequisites

Required courses

None

Recommended courses

BIO-441: Nutrition, from molecules to health

Important concepts to start the course

Solid knowledge and understanding in life sciences and a strong interest in entrepreneurship & R&D innovation

Learning Outcomes

By the end of the course, the student must be able to:

- Design the strategy, content and operations of a R&D innovation project in the food industry
- Translate an idea in a food innovation concept
- Organize a project team & collaborate to deliver collective results
- Pitch an opportunity & influence R&D deciders

Transversal skills

- Access and evaluate appropriate sources of information.
- Set objectives and design an action plan to reach those objectives.
- Communicate effectively with professionals from other disciplines.
- Identify the different roles that are involved in well-functioning teams and assume different roles, including leadership roles.
- Demonstrate a capacity for creativity.
- Demonstrate the capacity for critical thinking
- Make an oral presentation.
- Write a scientific or technical report.

Teaching methods

Students will be actively involved via interactive sessions to discuss examples, coaching sessions with teachers and assistants to work on a group project to develop their own R&D innovation concept for a fictive new food product, and regular pitches to mature their concept and develop an impactful communication style. In particular, the coaching sessions and discussions will guide the evolution of the project team with insight on:

- Business background & consumer insight for ideation
- Scientific strategy & research plan
- Product description & target communication
- Communication skills for pitching & influencing
- Project management & teamwork

Expected student activities

Prepare sessions to develop innovation concept and mature project proposal
Live interactions during courses with entrepreneur and proactive mindset
Teamwork & practice project management fundamentals

Practice oral pitches every 3-4 weeks

Assessment methods

Evaluation at the end of the semester on:Team project with written report and oral presentation

- Personal learnings and impact statement

Supervision

Assistants	Yes

Resources

Moodle Link

- https://go.epfl.ch/BIO-498