

Field to laboratory practices with data management & data mining

フィールドから実験室へーデータ管理とデータ検索

Subject Name:

Field to laboratory practices with data management & data mining

Course Type:

Class/Lab work/Personal work

Outline:

Starting from questions of farmers and from the customer's demands, together with the students we design experiments to be performed in the lab. Then, the students harvest the resulting data and together with the teacher, students will choose the most efficient data mining way to process the results. In the last, the students work to present their analyses and their conclusions of the experiments regarding the initial professional and scientific questions. The objective of this teaching unit is to push the students to translate a socio-economic demand in scientific question that has to be solved, to build a project as a proposal for an application call, describing the work-package, the project management and the financial support. In addition, the student will work together with the teachers as project teams to develop skills in project team management and communications.

Semester Schedule and Credit:

<u>Subject</u>	<u>Year</u>	<u>Semester</u>	<u>Day/Period</u>	<u>Credit</u>
Field to laboratory practices with data management & data mining	2	third	TBA/ by appt.	1.5

Location:

Green campus and Carreire campus at University of Bordeaux (UB) and local farms and agrofood industries

Instructor Information:

Pr Thierry Noel

Pr. M. Hernould

General Instructional Objective (GIO):

The students will visit farms and producer's experimental devices in order to discuss about the main problems encountered that affect production in terms of plant yield or quality. A particular focus will be paid to the ecophysiological status of the plants regarding the effects of abiotic stresses i.e. heat stress or biotic stresses induced by

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pathogens (viruses, bacteria or fungi). Concerning the customer demands, the students will study how to evaluate the quality of the plant production considering health benefits or health protection with a particular emphasis for safety (i.e. microbiological contaminant) or nutritional added value (i.e. secondary metabolites), etc.

Specific Behavioral Objectives (SBO):

1. Students will be able to generally translate the demands of the professionals into scientific questions (“From field”);
2. Students will be able to learn how to solve the scientific questions by testing hypotheses in a lab context (“to Lab”)
3. Students will be able to learn how to manage scientific questions and how to organise discussion with senior scientist
4. Students will be able identify/pose global-scale challenges related to Sciences based on themes related to plant production and human health ;
5. Students will be able to learn how to summarize a seminar by extracting the main ideas and synthesize the topic born from discussions with invited scientists and other students;

Course Overview/ Schedule:

1. Farms and producers’s experimental devices visits concerning plant management under biotic and abiotic stress pressures. Interview for consumer demands
2. Discussion with course faculty/lecturers concerning experimental and project design
3. Labwork to test the hypotheses

Homework:

The week before the visits, students need to conduct information gathering related to agro-resource productions and consumer demands to propose questions that can be asked during the visits or the interviews. The students organized as project teams need to design the project and the experiments including costs and schedule. The students need to write a project report and an oral communication.

Grading Method and Criteria:

Students are evaluated by their attendance, report and defence. A grade “A” is awarded to student with a complete attendance, a good investment in the discussions with producers, a clear translation of the socio-economic demand into scientific questions and a good explanation of the project and its issues during the oral defence and in the report.

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Textbook/ Referenced Materials: None

Notes: None