

## Field to Laboratory Practices with Data Management &amp; Data Mining

フィールドと実験室の融合 (フランス)

(ボルドー大学)

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| Course  | Field to Laboratory Practices with Data Management & Data Mining   |
| Course No.                                    | 01ER603  |
| Credits                                       | 1.5 credits  |
| Grade   | 2 <sup>nd</sup> year   |
| Timetable                                     | Fall AB  |
| Instructor                                    | Prof. M. Hernould, Prof. Antoine de Daruvar, Associate Prof. Gérard Barroso, Associate Prof. Patricia Thebault   |
| Course Overview                               | 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.   |
| Remarks                                       | Conducted in English at University of Bordeaux.  |
| Course Type                                   | Practical training and experiments   |
| Link between Course Objectives and Activities | Nurture the ability of the student to identify and solve health and food security problems that arise in social and natural environments different from the ones of the student's home country through both practical laboratory and field work.   |
| Academic Goal                                 | <p>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 eco-physiological status of the plants regarding the effects of abiotic stresses i.e. heat stress or biotic stresses induced by 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.</p> <ol style="list-style-type: none"> <li>1. Students will be able to generally translate the demands of the professionals into scientific questions ("From field");</li> <li>2. Students will be able to learn how to solve the scientific questions by testing hypotheses in a lab context ("to Lab")</li> <li>3. Students will be able to learn how to manage scientific questions and how to organise discussion with senior scientist</li> <li>4. Students will be able identify/pose global-scale challenges related to Sciences based on themes related to plant production and human health;</li> <li>5. Students will be able to learn how to summarize a seminar by extracting the main ideas and synthetize the topic born from discussions with invited scientists and other students.</li> </ol> |
| Course Schedule                               | <ol style="list-style-type: none"> <li>1. Farms and producers' experimental devices visits concerning plant management under biotic and abiotic stress pressures. Interview for consumer demands</li> <li>2. Discussion with course faculty/lecturers concerning experimental and project design</li> </ol>  |

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|  | 3. Lab work to test the hypotheses   |
| Course Prerequisites and Advisories                              |  |
| Grading Philosophy (Percentage/ Criteria/ Methodology)           | Students are evaluated based on their reports and defence. A grade 'A' is awarded to students with 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.   |
| Self-Directed Learning Other Than Coursework                     | 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. |
| Textbooks, References and Supplementary Materials                | None.  |
| Office Hours   | By appointment only.   |
| Other (i.e. Expectations on Classroom, Conduct and Decorum etc.) | Fusion of Field and Laboratory Studies (NTU)   |
| Related Courses  |  |
| Keywords   |  |