

DESCRIPTION OF ELECTIVE COURSE

Name of the school : Haute école de gestion de Genève	Academic Year: 2021-2022
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FIRST PART: DESCRIPTION OF MODULE	
1. Domain	Business and Services
2. Department	International Business Management
3. Course name	Introduction to Automation and Machine Learning
4. Code	31036
5. Type of education	<input checked="" type="checkbox"/> Bachelor <input type="checkbox"/> Master <input type="checkbox"/> MAS <input type="checkbox"/> <input type="checkbox"/> DAS / CAS / single days
6. Number of ECTS Credits	5
7. Prerequisites	<input checked="" type="checkbox"/> Validation of the modules in semesters 1 and 2 <input checked="" type="checkbox"/> Attendance of the modules in semesters 3 and 4 for full-time students, and semesters 5 and 6 for part-time students <input type="checkbox"/> Other :
8. Teaching language	<input type="checkbox"/> French <input type="checkbox"/> German <input checked="" type="checkbox"/> English <input type="checkbox"/> Other:
9. Objectives	<p>This course is about data manipulation and analysis using automation techniques, machine learning algorithms (such as Neural Networks) and their business applications.</p> <p>The first part of the course will guide the students through the development of automation solutions to treat data using Excel and Python.</p> <p>The second part focuses on machine learning. Some of the projects will be carried out in Python and some using KNIME, which is an open-source and user-friendly application that does not require coding skills. In this second part of the course, the students will also be trained to approach and structure a data project using standard methods, such as CRISP.</p> <p>More than half of the lectures are devoted to hands-on sessions and projects in which students will be confronted with typical business challenges.</p>

	<p>Learning outcomes. At the end of the module, the students will be able to:</p> <ul style="list-style-type: none"> - Develop simple codes to automate processes, in Excel or in Python - Use KNIME for data manipulation and analysis with basic algorithms of machine learning
<p>10. Contents <i>(General themes and descriptions, the accurate content may change)</i></p>	<p>Part 1 – Automation in Excel and Python :</p> <ol style="list-style-type: none"> 1. Data management and analysis 2. Best practices in coding <p>Part 2 – Artificial Intelligence for Business Applications :</p> <ol style="list-style-type: none"> 1. Linear, Logistic Regression and Neural Networks 2. Performance and Diagnostics in Machine Learning 3. Best practices in organizing a data project 4. Typical Artificial Intelligence Applications in Business
<p>11. Evaluation</p>	<p>The grading of the module shall be based on:</p> <ul style="list-style-type: none"> • A written exam during the semester and • Mid-term assessments during weeks 1 to 15 <p>(The methods and weightings are communicated by the instructor before the evaluations)</p>
<p>12. Remediation/repetition</p>	<p><input checked="" type="checkbox"/> Compulsory remediation if the module grade is between 3.5 and 3.9 / 6. When subject to a remediation, only the grade of the remedial exam will be taken into account (maximum grade 4.0). A repeated module cannot benefit from a remedial exam.</p> <p><input type="checkbox"/> No remediation</p>
<p>13. Coordinator / main instructor</p>	<p>Valerio Rossetti</p>
<p>SECOND PART: LOCATION OF THE MODULE IN THE STUDY PLAN</p>	
<p>14. Level</p>	<p><input type="checkbox"/> Basic module <input type="checkbox"/> Advanced module <input checked="" type="checkbox"/> Specialized module <input type="checkbox"/> Other:</p>
<p>15. Characteristics</p>	<p><input checked="" type="checkbox"/> Module is mandatory (which could lead to final dismissal from the program, cf. art.15, al.1, « Statut des étudiant-e-s bachelor »)</p>

16. Type	<input checked="" type="checkbox"/> Main module <input type="checkbox"/> Module linked to main module <input type="checkbox"/> Optional module <input type="checkbox"/> Other:
17. Time organization	<input checked="" type="checkbox"/> Module over 1 semester <input type="checkbox"/> Module over 2 semesters <input checked="" type="checkbox"/> Spring semester <input type="checkbox"/> Fall semester <input type="checkbox"/> Other