Hes·so
Haute Ecole Spécialisée
de Suisse occidentale

DESCRIPTION OF ELECTIVE COURSE

Name of the school: Haute école de gestion de Genève	Academic Year: 2026-2027

FIRST PART: DESCRIPTION OF MODULE	
1. Domain	*Business and Services*
2. Department	*International Business Management*
3. Course name	**Quantitative Forecasting and Decision-Making**
4. Code	*31003*
5. Type of education	☒ *Bachelor* ☐ *Master* ☐ *MAS* ☐ ☐ *DAS / CAS / single days*
6. Number of ECTS Credits	**5**
7. Prerequisites	☒ *Validation of the modules in semesters 1 and 2* ☒ *Attendance of the modules in semesters 3 and 4 for full-time students, and semesters 5 and 6 for part-time students* ☐ *……..*
8. Teaching language	☐ *French* ☐ *German* ☒ *English* ☐ *Other: ……..*
9. Objectives	*Today's business world is driven by data. Many sectors and many functions are overwhelmed with data that is unfortunately often unused. However, with proper quantitative methods, data can be transformed into information and knowledge that is useful to run a business and make decisions. This course is thus articulated around a catalog of quantitative methods that can be used in a day-to-day business.* *The first objective is to know how to manipulate data, in which situation it can be useful, and how it can be used as a communication tool.* *The second objective is to master (quantitative) forecasting techniques for business purposes. Those include mostly (but are not limited to) statistical tools for time series and regression techniques.* *The third objective is to cover several, supervised and unsupervised, machine learning techniques for classification and prediction purposes (without any coding or programming components).*

	The fourth objective is to highlight the use of data in decision-making processes, covering methods and heuristics, to help business managers to make, and justify, decisions. *More precisely, at the end of this course, students should be able to:* • *Acquire a general business knowledge of forecasting and decision-making.* • *Visualize and explain data in a management context.* • *Identify the principles and advantages of various forecasting methods.* • *Describe and apply various statistical techniques for forecasting.* • *Generate forecasts with different patterns, such as, e.g., trends or seasonality.* • *Apply various machine learning techniques for classification and prediction.* • *Experiment various decision-making models and heuristics, especially under uncertainty or risks.* • *Link forecasting with other strategic aspects of business, in particular marketing, HR or innovation management.*
10. Contents *(General themes and descriptions, the accurate content may change)*	*The course is articulated along the following themes:* **Forecasting and data analysis:** 1. *Basic notions. Qualitative and quantitative methods.* 2. *Forecasting techniques (e.g., smoothing, regressions, time series decompositions, AR models).* 3. *The use of data for communication and decision making. Data analysis, visualization, presentation, and storytelling.* 4. *Forecasting and strategic planning. How to manage the present from the future?* **Introduction to some supervised and unsupervised algorithms (no-code approach):** 5. *Classification techniques (e.g., clustering, SVM, Decision trees).* 6. *Prediction techniques (e.g., Decision trees, isolation forests)* **Decision making heuristics:** 7. *Why is it important for decision makers to incorporate data-driven decision making?* 8. *Decision making in a certain/uncertain future. Decision trees.* 9. *Scenario analysis. Bayesian analysis.* 10. *Multicriteria decision making. How to balance multiple objectives? Scoring heuristics.* *Examples and use cases cover various areas of business, such as, e.g., marketing and sales, trading, finance, innovation strategy, operations, or technology, for the students to be able to apply generic tools and techniques in various contexts.*
11. Evaluation	*The grading of the module shall be based on:* • *Mid-term assessments during weeks 1 to 15 according to the decision of the instructor.* *(The methods and weightings are communicated by the instructor before the evaluations)*

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12. Remediation/repetition	☒ *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.* ☐ *No remediation*
13. Coordinator / main instructor	*Alexandre Caboussat*
SECOND PART: LOCATION OF THE MODULE IN THE STUDY PLAN	
14. Level	☐ *Basic module* ☐ *Advanced module* ☒ *Specialized module* ☐ *Other: ……..*
15. Characteristics	☒ *Module is mandatory (which could lead to final dismissal from the program, cf. art.15, al.1, « Statut des étudiant-e-s bachelor »)*
16. Type	☒ *Main module* ☐ *Module linked to main module* ☐ *Optional module* ☐ *Other: ……..*
17. Time organization	☒ *Module over 1 semester* ☐ *Module over 2 semesters* ☐ *Spring semester* ☒*Fall semester* ☐ *Other*