Syllabus

for course at advanced level

Business Analytics: Data, Models and Decisions
Affärsanalys: data, modeller och beslut

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	FE5435
Valid from:	Summer 2015
Date of approval:	2015-06-08
Department	Stockholm Business School
Main field:	Företagsekonomi
Specialisation:	A1F - Second cycle, has second-cycle course/s as entry requirements

Decision

This syllabus has been adopted by the Head of Education at Stockholm Business School, Stockholm University, 2015-06-08.

Prerequisites and special admittance requirements

Admitted to a master's program at Stockholm Business School as well as a minimum of 52,5 credits obtained within the program.

Course structure

Examination code	Name	Higher Education Credits
5435	Business Analytics: Data, Models and Decisions	7.5

Course content

Advances in information technology and quantitative methods have dramatically changed how modern firms operate. Many strategic and operational decisions are today based on models from operation management and management science. The objective of this course is to introduce the most important of these techniques and show how they can be used to make better decisions. Theory will be motivated by relevant examples with applications in operations, finance, management and marketing. Applications will be done using a common spreadsheet software (excel).

The course will primarily be taught through lectures, computer labs and case discussions. Students will analyse cases and practice using data to make better and more informed decisions. The course will also highlight potential disadvantages and limitations of quantitative decision methods.

The course will cover techniques such as decision analysis, decision trees, probability, statistics, econometrics, simulation, linear programming, non- linear optimization, and discrete optimization.

Learning outcomes

Intended Learning Outcomes

Upon completion of the course, students should be able to:

Knowledge and understanding

1. Recognize the underpinnings of quantitative decision methods.

Skills and abilities

2. Use data and models that can help businesses make better decisions.

Judgement and approach

3. Critically evaluate quantitative decision tools and their advantages and limitations.

Education

The course consists of a combination of lectures, seminars and group work and requires a significant portion of self-study on the part of students. Assessment for the course will be continuous and is carried throughout the different activities of the course.

The course workload is 200 hours equivalent to 7,5 ECTS (40 hours per week equivalent to 1,5 ECTS).

The language of instruction is English.

Forms of examination

Assessment for the course will be continuous and is carried throughout the different course activities. Each assessment task is weighted in relation to its importance in the overall assessment of the course. The student's results from the different assessment tasks are added up to a total course score that will then translate into the final grade for the course.

Assessment tasks

The course contains the following weighted assessment tasks:

1. Individually written exam: assesses intended learning outcomes 1–3; constitutes 60% of total course points.

2. Seminars: assesses intended learning outcomes 1–3; constitutes 40% of total course points.

Grading

After completion of the course, students will receive grades on a scale related to the intended learning outcomes of the course. Passing grades are A, B, C, D and E. Failing grades are Fx and F. A grade Fx can be completed for a grade E.
A course comprises 0–100 course points. Receiving a final passing grade requires ≥ 50 course points. The scale for the final grade is tied to fixed score intervals: A: 90-100; B: 80-89; C: 70-79; D: 60-69; E: 50-59; Fx: 45-49; F: 45. The grades correspond to the total score points a student obtains (over a total of 100) for all the weighted assessment tasks combined as part of the continuous assessment for the course.

All assessment tasks are assessed on a 100-point scale. Each assessment task is awarded 0–100 points. The score for a single assessment task is the number of points multiplied by its percentage weight, and the combined total of score points for all weighted assessment tasks for the course are added up to a final score between 0 and 100 which then translates into a corresponding final course grade between A and F.
The student is responsible for completing the course's assessment tasks: that a sufficient amount of course points is earned and a passing course grade is obtained. The course's final assessment task can be taken twice: 1) during the course's first scheduled occasion; and, if a passing result (≥ 50 course points) was not achieved at the first occasion, 2) at the course's second, scheduled occasion. All other assessment tasks are offered once during the course.

A passing grade (A–E) in the course is obtained when a student has achieved ≥ 50 course points.

A failing grade (Fx or F) in the course is obtained when a student has not achieved ≥ 50 course points:

• If 45–49 course points are achieved, a grade Fx is obtained, which can be completed for a grade E within 3 semester weeks after receiving instructions from the course director. If a complementary task is not completed within this time limit, and the course's two final assessment tasks have been accomplished, the course grade Fx is confirmed, implying that the student must re-register for the course and that previously acquired course points are forfeited. Note that first-time registered students have priority access to the seminar groups.

• If 45 course points are achieved, a grade F is obtained, implying that the entire course must be retaken and that previously acquired course points are forfeited.

Re-registration implies that:

• first-time registered students have priority access to the course's group registration;

• the final assessment task can be re-assessed without attendance at any of the course's other learning activities and without points from the course's other assessment tasks accredited.

Students receiving a passing grade may not retake the final examination or complete a previously not completed assessment task to attain a higher grade. A passing grade may not be turned into a failing grade upon the request of a student.

Assessment criteria

Assessment criteria are designed as overall assessments, combined qualitative descriptions of what the student is expected to do in order to demonstrate how well the course's learning outcomes are achieved. The assessment criteria are based upon the general abilities as expressed in the degree objectives of the Higher Education Ordinance (appendix 2, System of Qualifications). The list of abilities below is a compilation of these degree objectives. To pass the course (grade E) students should demonstrate general ability to:

• recall, understand and explain course content, the course subject and its scientific basis and methodology;
• apply course content;
• critically analyse course content;
• problematise course content;
• orally and in writing, present and discuss course content;
• assess course content in terms of scientific, social, and ethical aspects;
• relate course content to current social issues;
• meet standards of written presentation and formal accuracy.

The following assessment criteria are used to decide to what extent students have demonstrated these abilities and hence fulfil the course's intended learning outcomes, whereby a grading decision can be made. A higher grade-level presupposes the abilities at lower levels.

A (Excellent)☐

The student demonstrates ability to evaluate and relate to the content of the course from a comprehensive, critically reflective perspective, as well as to transfer and apply insights in new, meaningful contexts.

B (Very Good)☐

The student demonstrates ability to, from an overarching and coherent perspective of the field, understand and use concepts to explain how different aspects of the course relate to each other, interconnect and become meaningful.

C (Good)☐

The student demonstrates ability to discuss the content, tasks and complex issues dealt with in the course from several well-developed but mainly independent perspectives.

D (Satisfactory)☐

The student demonstrates satisfactory ability to discuss the content, tasks and complex issues dealt with in the course in a way that, albeit in-depth and elaborate, is decidedly one-dimensional.

E (Sufficient)☐

The student demonstrates sufficient ability to discuss the content, tasks and complex issues dealt with in the course in a way that is decidedly one-dimensional.

Fx (Fail)☐

The student's knowledge, skills and abilities display minor flaws, overall or in significant parts.

F (Fail)☐
The student's knowledge, skills and abilities display major flaws, overall or in significant parts.

Interim

If the course is discontinued, or its contents are substantially altered, students have the right to be examined according to this syllabus once per semester for three further semesters.

Limitations

This course may not be included in a degree together with a course, taken in Sweden or elsewhere, of identical or partially similar content.

Required reading

Required Reading

Dimitris Bertsimas, Robert M. Freund, Data, Models, and Decisions: The Fundamentals of Management Science, Dynamic Ideas, 2004.

A selection of case studies, academic and business articles (updated each semester, see the study guide).