COURSE GENERAL OVERVIEW

Course details	
Title	**Business Analytics**
Degree	**MIM**
Year	**201**^{7}**-201**^{8}
Semester	**2ndsemester**
Credits ECTS	**3**
Core/elective	**(Elective)**
Departament	**ICADE Business School**
Area	**Business Management**

Instructor`s details	
Professor	
Name	**Dr. Óscar Gallego Castilla (Mr.)**
Department	**Management**
Área	**ICADE Business School**
Office	
e-mail	ogallego@comillas.edu, oscgal123@gmail.com
Phone	**Mornings (2 hours/week) and by appointment (via email)**
Contact	**By appointment (via email)**

COURSE DESCRIPTION

Context of the course
The course in the professional context

The MIM "Business Analytics" course deals with the key processes, learnings and analytic activities through which companies manage the Digital space. Special focus is given to the impact of Big Data and Business Analytics on organizational strategy and management optimization.

As Big Data and IoT have become ubiquitous activities in the social and business arenas generating enormous amounts of data, Business Analytics is becoming the cornerstone to support decision analysis using such data. Furthermore, Artificial Intelligence's real value on predictive analysis uses fundamental methodologies and techniques which Business Analytics apply in management problem resolution.

The subject of Business Analytics is of the highest relevance: the way companies generate, collect, integrate, program, process and use their data can become either an advantage or disadvantage to their survival. Using Business Analytics to grow is

no longer an option, and managing customers, the organization, the financials and the operations of a company cannot be understood without applying some key analytic methodologies that can truly add the minimum added value companies require now days not just to be competitive, but to exist.

Business Analytics include amongst others: Quantitative techniques for collection, analysis and interpretations of data; Data quality; Descriptive / prescriptive / predictive analytics; Decision making in scenarios of low and high uncertainty; Risk and evaluation alternatives; Hadoop; Cloud Computing; Cognitive computation; Multidimensional analysis; Data Visualization; Sentiment Analysis; GIS; Financials; and Governance.

This course will address Business Analytics first by introducing Digital and Big Data, then covering the essential methodologies, to then finalize with special focus on Operational Analytics.

Objectives

The "Business Analytics" course key topics and concepts are:
- Digital strategy, business and market space, and its impact on people, organization and culture
- the relevance of Big Data
- generation, integration, programing of data and data systems
- data science and processing
- descriptive, prescriptive and predictive
- key concepts on Customer, People and Financial analytics with focus on Operational analytics
- governance

COURSE CONTENTS

Contents
PART I: DIGITAL
1. What is Digital strategy and business
2. Impact on People, Organization and Culture
PART II: BIG DATA
3. Introduction and relevance
4. Generation, integration
5. Programming, data systems
6. Data science, processing
PART III: BUSINESS ANALYTICS
5. Fundamentals of Business Analytics: Customer, People, Financials, Operational
6. Data quality
7. Descriptive, prescriptive and predictive analytics
8. Governance
FOCUS THRU THE COURSE: OPERATIONAL ANALYTICS

9. Problem resolution and exercises thru the course using operational analytics

Skills
General skills of area-course

COMPETENCIAS GENERALES (CG):

CG 02 - Gestión de la información y de datos como elementos clave para la toma de decisiones y la identificación, formulación y
resolución de problemas empresariales.

CG 01 - Capacidades cognitivas de análisis y síntesis aplicadas a situaciones de negocios globales y a problemáticas organizativas
de gestión internacional.

CG 03 - Resolución de problemas y toma de decisiones en los niveles estratégico, táctico y operativo de una organización
empresarial multinacional, teniendo en cuenta la interrelación entre las diferentes áreas funcionales y de negocio, así como entre los
distintos mercados geográficos.

CG 09 - Capacidad de aprendizaje autónomo para seguir formándose, en el desarrollo de las habilidades cognitivas y en la adquisición de los conocimientos relevantes aplicados a la actividad profesional y empresarial de un manager internacional.

Specific skills of area-course

CE OPT 08. Conocimiento y comprensión de metodologías cuantitativas y de herramientas informáticas, orientadas a la gestión estratégica
de la información disponible, y aplicadas a la resolución de problemas reales y a la toma de decisiones empresariales.

RA 1. Comprende y valora la aportación de la gestión estratégica de la información para la competitividad de la organización.

RA 2. Comprende y reconoce los retos derivados de la generación masiva de datos e información al alcance de la organización actual.

RA 3. Entiende la filosofía, los métodos y los principios teóricos que sustentan la recopilación de datos cuantitativos y su análisis.

RA 4. Domina las diversas técnicas y herramientas estadísticas y sabe y aplicarlas adecuadamente a diferentes tipos de datos cuantitativos.

RA 5. Utiliza diferentes programas informáticos (Excel, SPSS, entre otros) para trabajar con conjuntos de datos disponibles, pudiendo realizar con ellos
distintos niveles de análisis (descriptivo; multivariante).

TEACHING METHODOLOGY

Course teaching activities	

Teaching and learning in the classroom: Activities	Skills
Lectures. Instructors promote debate during theoretical lectures. Students must come to lectures with all pre-reading done. Attendance and participation are essential requirements of the effectiveness of lecturing sessions.	CE OPT 02, CGI1, CGI4
Individual portfolio oral and written presentation. Each student will orally present at least some portion of the portfolio he/she has been working on. These include business cases and class work. Presentations will take place in class and will be addressed to the rest of the class mates who are expected to ask questions to and evaluate those presenting.	CE OPT 02, CGI1, CGI2, CGI4, CGS16, CGS17,
Collaborative learning and class participation. Students work in group on a guided basis; they elaborate a portfolio focused on a specific real Company.	CE OPT 02, CGI2, CGI4, CGS17
Teaching and learning outside the classroom: Activities	Skills
Individual study and reading. Each student needs to organize their time outside the class in order to do all the pre-readings of each session, and in order to study the subject. The course instructor recommends some complementary reading.	CE OPT 02, CGI1, CGI4
Group portfolio oral and written presentation. At the end of the semester, students will hand in a piece of argumentative writing several paragraphs long written about one topic proposed by the instructor. Alternatively, students might work in group on the portfolio of a company addressing some key questions like: What is the actual business of the Company?; What analytic process does the Company follow?; What are they outcomes and outputs from using Business Analytics?	CE OPT 02, CGI1, CGI2, CGI4, CGS16, CGS17 CGI1, CGS17
Tutorials. Students will have a chance to meet with the course instructor individually and outside the class if required. These tutorial sessions will help students solve problems and uncertainties faced regarding the course contents, activities and assessment.	

COURSE EVALUATION AND ASSESSMENT CRITERIA

Students have to pass each and every assessment activity shown in the table below. In case of failure, students must re-sit each failed activity.

Assignments must be delivered in the time and date specified by the course instructor, otherwise the students will get a grade of "0" in the missed assignment.

Activities to be assessed	WEIGHT
Individual portfolio oral and written presentation	20%
Collaborative learning & class participation	10%
Group portfolio oral and written presentation	20%
Individual exam	50%

SUMMARY OF STUDENTE'S WORKING HOURS			
CONTACT HOURS			
Lectures	Group work sessions	Managed activities	Evaluation / assessment
14	14		2
WORKING HOURS OUTSIDE THE CLASSROOM			
Individual reading and preparation	Individual work on essay	Collaborative learning (work in groups)	Individual study
10	10	10	15
TOTAL CREDITS ECTS:3			75

REFERENCES AND OTHER BIBLIOGRAPHIC RESOURCES

Basic references
Books
Provost, F. & Fawcett, T. (2013). *Data Science for Business*: What you need to know about data mining and data-analytic thinking. O'Really Media, 1st Edition.
Web
Business Analytics links, such us:

- International Institute for Analytics (http://www.iianalytics.com/)
- KDNUGGETS (http://www.kdnuggets.com/)
- Search Business Analytics (http://searchbusinessanalytics.techtarget.com/)