COURSE OUTLINE

GENERAL

SCHOOL	Sciences and Engineering		
ACADEMIC UNIT	Computer Science		
LEVEL OF STUDIES	1st Cycle		
COURSE CODE	COMP-343	**SEMESTER**	Spring
COURSE TITLE	Business Analytics		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
	2.5	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialization
PREREQUISITE COURSES:	COMP-140 and Junior Standing
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A
- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

After completion of the course students are expected to be able to:

- Understand and apply the concepts and methods of business analytics
- Acknowledge the means and methods for a data-driven decision-making strategy to an organization
- Formulate hypothesis to extract value from data (i.e., ask the right business questions)
- Apply Key Performance Indicators (KPIs) and Key Quality Indicators (KQIs)
- Describe metrics of interest (conversion rates, churn rates, stickiness)
- Recognize trends, detect outliers, and summarize datasets
- Gain Hands on experience with Google analytics: Understanding Audience, Acquisition,

Behavior and Conversion Reports
- Understand how A/B testing can benefit an application
- Develop the ability to create meaningful and impactful data visualizations to convey insights to diverse audiences

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Project planning and management

SYLLABUS

1. Business analytics thinking
   a. Business analytics and applications
   b. Data driven decision making
2. Storytelling with data by the utilization of important metrics
   a. Components of storytelling
   b. The storytelling with data process
   c. Use of data visualization to enhance data storytelling
3. Data collection and quality
   a. Dataset structure
   b. Data cleansing techniques
   c. Key Quality Indicators and their importance
4. Descriptive analytics
   a. Data summarization
   b. Statistical diagnostics
   c. Historical analysis
   d. Data profiling
5. Use Case: Analyze historical data to identify patterns, anomalies and trends in data
6. A/B testing techniques
   a. Randomized sampling
   b. Hypothesis formulation
   c. Key metric selection

d. Statistical analysis
7. Web analytics
    a. Audience tracking
    b. Performance monitoring
    c. Conversion Rate Optimization
    d. Funnels
8. Use Case: Perform web analytics to a mobile app or website presenting audience and acquisition reports and design of funnels
9. Business intelligence and BI Tools for the creation of BI reports and business analytics
    a. Data integration and consolidation
    b. Interactive dashboards and visualization

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	*Use of ICT in teaching / Χρήση ΤΠΕ* *Communication with students / Επικοινωνία με Φοιτητές*
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	*(see table below)*
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Midterm Exam, Collaborative Team Project, Participation, Final Exam

Activity	*Semester workload*
Lectures	35
Preparation	26
Coursework	40
Exam Preparation	45
Examination	4
Course total	*150*

ATTACHED BIBLIOGRAPHY

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Data Science for Business (what you need to know about data mining and data-analytic thinking)	F. Provost, T. Fawcett	O'Reilly	2013	978-144936132

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Business Intelligence, Analytics, and Data Science: A Managerial Perspective	Ramesh Sharda and Efraim Turban	Pearson	2017	978-0134633282
A Practitioner's Guide to Business Analytics	Randy Bartlett	O'Reilly	2013	978-0071807609
Hands-On machine Learning with Scikit-Learn & TensorFlow	Aurelien Geron	O'Reilly	2017	978- 1491962291