Computer Science for Business Leaders

Professor: Jésica de Armas Adrián

Course Type: Elective

Credits: 4 ects

Term: 3rd Term

Course Description

This course is designed for students who expect to be future product managers, operations and logistics managers, founders, and decision-makers who are looking to improve their understanding of computer science and their ability to make better technology decisions. **No prior experience with computer science and programming required.**

In today's digital economy, the demand for business managers (product managers, operations and logistics managers, founders, and decision-makers more generally) with a comprehensive understanding of how technology systems work is skyrocketing. As the digital landscape rapidly evolves, executives who can apply high-level technology concepts and methods to complex business challenges—and join in the conversation with engineers—will hold a competitive advantage. Designed especially for business leaders, this course takes an approach to computer science emphasizing mastery of high-level concepts and design decisions. Through a mix of technical instruction, discussion of case studies, and hands-on exercises, this course empowers managers and leaders— even those with limited technological skills—to think more methodically, solve problems more efficiently and make technological decisions. Topics include cloud computing, security, databases, web programming, and more. Students emerge from this course with a first-hand appreciation of how it all works—and with the technological skills and decision-making confidence to contribute to the company's strategic success.

Objectives

- Learn the fundamental concepts of computer science and programming
- Gain a better understanding of technical jargon and design concepts
- Explore how past and present technologies impact future innovations
- Converse more confidently and plan more effectively with engineers
- Improve the ability to make better-informed technological decisions in the management context

Methodology

The pedagogical philosophy in this course embraces the principle of learning by doing. Students are expected to struggle at times, which is the learning by doing process. This course provides quantitative skills to translate conceptual understanding into specific operational plans.

The course will combine relevant theoretical material with a selection of applied cases. Usually the lecture will use assigned readings as a starting point to investigate selected topics in greater detail. Students are expected to read the assigned materials before coming to class.

Taking into account that this course has a hands-on approach, laboratory classes are the key to learn.

Evaluation criteria

Three elements concur in the final mark:

> **Final exam:** The final exam is used to assess the individual level of knowledge and understanding of each student. It will include questions covering topics from all the classes. This item counts for 40% of the final mark. To pass the exam the minimum grade is 5. The maximum grade for a retake is a 5.

> **Participation:** Since most of our classes are lab classes, attendance and participation are extremely important. It will count for 10% of the mark (0.5% for each session).

> **Course projects:** As this is a practical course, you will be mostly evaluated based on your ability to develop small projects and assignments. This item counts for 50% of the final mark and cannot be retaken. You will develop five small projects/assignments (10% each one) and it is mandatory to carry on all of them.

Students are required to attend 80% of classes. Failing to do so without justified reason will imply a Zero grade in the participation/attendance evaluation item and may lead to suspension from the program

Students who fail the course during the regular evaluation are allowed ONE re-take of the evaluation, in the conditions specified above. If the course is again failed after the retake, the student will have to register again for the course the following year.

In case of a justified no-show to an exam, the student must inform the corresponding faculty member and the director(s) of the program so that they study the possibility of rescheduling the exam (one possibility being during the "Retake" period). In the meantime, the student will get an "incomplete", which will be replaced by the actual grade after the final exam is taken. The "incomplete" will not be reflected on the student's Academic Transcript.

Plagiarism is to use another's work and to present it as one's own without acknowledging the sources in the correct way. All essays, reports or projects handed in by a student must be original work completed by the student. By enrolling at any UPF BSM Master of Science and signing the "Honor Code," students acknowledge that they understand the schools' policy on plagiarism and certify that all course assignments will be their own work, except where indicated by correct referencing. Failing to do so may result in automatic expulsion from the program."

Reading Materials/ Bibliography/Resources

In general, a student attending all classes will not need any book to pass this course. Online resources and projects implementations will probably prove more useful than a book. Some interesting books:

- Green, J. (2015). Cyber Security: An Introduction for Non-Technical Managers. 1st ed. Routledge.
- Jonathan Eckstein, Bonnie R. Schultz (2018). Introductory Relational Database Design for Business, with Microsoft Access. ISBN: 978-1-119-32944-2
- Groom, F. (Ed.), Jones, S. (Ed.). (2018). Enterprise Cloud Computing for Non-Engineers. New York: Auerbach Publications.

Bio of Professor

Jésica de Armas is PhD in Computer Science. She developed her tesis at the Universidad de La Laguna and the University of Edinburgh (EPCC, Edinburgh Parallel Computing Centre). Her main research interests are in the field of Operational Research and Artificial Intelligence applied to logistics and transportation problems. Find her full cv at https://jesicadearmas.com.