NCE/18/1800007 — Apresentação do pedido - Novo ciclo de estudos

1. Caracterização geral do ciclo de estudos

1.1. Instituição de Ensino Superior:
Universidade Nova De Lisboa

1.1.a. Outra(s) Instituição(ões) de Ensino Superior (proposta em associação):

1.2. Unidade orgânica (faculdade, escola, instituto, etc.):
Faculdade De Economia (UNL)

1.2.a. Outra(s) unidade(s) orgânica(s) (faculdade, escola, instituto, etc.) (proposta em associação):

1.3. Designação do ciclo de estudos:
Análise de Negócio

1.3. Study programme:
Business Analytics

1.4. Grau:
Mestre

1.5. Área científica predominante do ciclo de estudos:
Gestão

1.5. Main scientific area of the study programme:
Management

1.6.1 Classificação CNAEF – primeira área fundamental, de acordo com a Portaria n.º 256/2005, de 16 de Março (CNAEF-3 dígitos):
345

1.6.2 Classificação CNAEF – segunda área fundamental, de acordo com a Portaria n.º 256/2005, de 16 de Março (CNAEF-3 dígitos), se aplicável:
NA

1.6.3 Classificação CNAEF – terceira área fundamental, de acordo com a Portaria n.º 256/2005, de 16 de Março (CNAEF-3 dígitos), se aplicável:
NA

1.7. Número de créditos ECTS necessário à obtenção do grau:
90

1.8. Duração do ciclo de estudos (art.º 3 DL n.º 74/2006, de 24 de março, com a redação do DL n.º 63/2016 de 13 de setembro):
3 semestres

1.8. Duration of the study programme (article 3, DL no. 74/2006, March 24th, as written in the DL no. 63/2016, of September 13th):
3 semesters

1.9. Número máximo de admissões:

350

1.10. Condições específicas de ingresso.

O programa requer bases matemáticas e noções de programação ao nível de um 1º ciclo em Economia ou Gestão. Podem candidatar-se titulares do grau de licenciado, ou equivalente, nas áreas científicas de
Ciências, Tecnologia/Informática, Engenharia, Economia, Finanças ou Gestão, sendo as candidaturas sujeitas à apreciação curricular do candidato pela Comissão de Admissão.
Candidatos submetem formulário de candidatura online, ao qual serão anexados:
1. Fotografia tipo passe
2. Cópia do documento de Identificação
3. Curriculum Vitae
4. Certificado de licenciatura, com discriminação das notas e ECTS, à data
5. Certificado de Inglês (se disponível)
6. Recibo do pagamento da taxa de inscrição
7. Outros documentos em Inglês que possam enriquecer a candidatura, como uma carta de motivação, carta de recomendação ou certificado do GMAT.

1.10. Specific entry requirements.

The program requires background knowledge in mathematics and programming at the level of a 1st cycle in Economics or Management. Candidates must have a Bachelors degreed (or equivalent) in the scientific areas of Science, Technology/Computer Science, Engineering, Economics, Finance or Management, the applications being subjected to the evaluation of the candidate's curriculum, by the Admissions Committee.

Candidates submit an online application form, with the following attachments:
1. Passport photo
2. Copy of ID card
3. Curriculum Vitae
4. Grade transcript with full list course list and grades
5. English Certificate (when available)
6. Application fee payment receipt
7. Any other documents in English that may enrich the application, such as a motivation letter, reference letter or GMAT transcript.

1.11. Regime de funcionamento.

Diurno

1.11.1. Se outro, especifique:

N/A

1.11.1. If other, specify:

N/A

1.12. Local onde o ciclo de estudos será ministrado:

Campus de Carcavelos
Rua da Holanda, 1
2775-405 Carcavelos – Portugal

1.12. Premises where the study programme will be lectured:

Carcavelos Campus
Rua da Holanda, 1
2775-405 Carcavelos – Portugal

1.13. Regulamento de creditação de formação académica e de experiência profissional (PDF, máx. 500kB):

1.13._NSBE_Despacho 14676-2016 de 5 dezembro_Regulamento Creditacao Conhecimentos.pdf

1.14. Observações:

O ciclo de estudos será integralmente lecionado em Inglês.
Por essa razão, os itens das fichas de unidades curriculares Objetivos de aprendizagem/Conteúdos programáticos/ Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular/Metodologias de ensino/Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular/Bibliografia de consulta apenas se apresentam em língua inglesa.

1.14. Observations:

The study programme will be interelly taught in English.
Therefore the items in the curricular unit Learning outcomes/Syllabus/Demonstration of the syllabus coherence with the curricular unit's objectives/Teaching methodologies/Demonstration of the coherence between the teaching methodologies and the learning outcomes/Bibliography are only presented in English.

2. Formalização do Pedido

Mapa I - Conselho Científico da Nova SBE

2.1.1. Órgão ouvido:
Conselho Científico da Nova SBE

2.1.2. Cópia de ata (ou extrato de ata) ou deliberação deste órgão assinada e datada (PDF, máx. 100kB):
2.1.2._DocInt_Nova SBE_CC_Extracto Acta 54 de 17 Abril 2018.pdf

Mapa I - Colégio de Diretores da Universidade Nova de Lisboa

2.1.1. Órgão ouvido:
Colégio de Diretores da Universidade Nova de Lisboa

2.1.2. Cópia de ata (ou extrato de ata) ou deliberação deste órgão assinada e datada (PDF, máx. 100kB):
2.1.2._Exp0136_2018_Acreditacao NCE 19-20_07Ago2018_p1.pdf

Mapa I - Reitor da Universidade Nova de Lisboa

2.1.1. Órgão ouvido:
Reitor da Universidade Nova de Lisboa

2.1.2. Cópia de ata (ou extrato de ata) ou deliberação deste órgão assinada e datada (PDF, máx. 100kB):
2.1.2._Despacho_Senhor_Reitor_AADG_11-10-2018.pdf

3. Âmbito e objetivos do ciclo de estudos. Adequação ao projeto educativo, científico e cultural da instituição

3.1. Objetivos gerais definidos para o ciclo de estudos:
O mundo está cada vez mais dependente de algoritmos e dados para apoiar a tomada de decisão. As organizações, públicas ou privadas, com ou sem fins lucrativos, introduzem sistemas baseados em dados para apoiar as funções de gestão, mas carecem de conhecimento e pessoas para integrar as novas tecnologias e ajustar os seus sistemas, bem como a cultura para os alavancar. Estas organizações precisam de tradutores – pessoas que percebem as organizações e os problemas de gestão, como usar a tecnologia e a informação para os resolver, e como criar os sistemas internos e externos que viabilizam este ecossistema.
O objetivo do Mestrado em Análise Avançada de Dados para Gestão é formar a próxima geração de líderes, gestores, analistas e investigadores e equipá-los com as capacidades para perceber os problemas e desenhar sistemas híbridos (homem-máquina), que apoiam a tomada de decisões e resolução de problemas com base em dados.

3.1. The study programme's generic objectives:
The world is increasingly dependent on algorithms and data to inform and support decision-making. Organizations, private and public, for-profit and not-for-profit, are keen to introduce data-driven systems and methods to support management functions, but lack the knowledge and the people to integrate the new technologies and adjust their systems and culture to leverage them. These organizations need translators – people who understand organizations and the managerial problems they face, how to use technology and leverage data to solve them, and how to set up internal and external systems that enable the required ecosystem.
The purpose of the MSc in Data Driven Management is to train the next generation of leaders, managers, analysts and researchers, and equip them with the skills to understand problems and design hybrid (human-machine) systems for data-driven decision making and problem solving.

3.2. Objetivos de aprendizagem (conhecimentos, aptidões e competências) a desenvolver pelos estudantes:
O programa desenvolve sólidas competências organizacionais e computacionais para analisar e traduzir grandes conjuntos de dados de suporte às decisões de gestão e contribuir para a criação dos necessários sistemas internos.

Os objetivos de aprendizagem são:
• Compreender como desenhar e gerir organizações apoiadas em dados (organizacional);
• Aprender a liderar projetos e equipas interdisciplinares para resolver problemas complexos e tomar/implementar decisões complexas, baseadas em dados (liderança);
• Perceber/implementar as ferramentas disponíveis para a curadoria de dados e o seu desenvolvimento (técnico);
• Aprender a transformar dados concretos em narrativas e orientações que melhorem as decisões humanas e inspirem o empenhamento humano e organizacional (Comunicação, liderança e implementação);
• Perceber as limitações das decisões baseadas em dados e o papel dos sistemas cognitivos humanos, bem como os constrangimentos legais e éticos (pensamento crítico).

3.2. Intended learning outcomes (knowledge, skills and competences) to be developed by the students:

The program develops solid organizational and computational skills, to analyze and translate large data sets, to support management decisions and contribute to set up the required internal systems.

The Learning objectives are:
• To understand how to design and manage data-driven organizations (organizational)
• To learn how to lead projects and interdisciplinary teams to solve complex problems and take and implement complex decisions leveraging data (team, leadership);
• To understand/deploy the available technical tools for curation and manipulation of data and the prospects for their development (technical);
• To learn how to transform hard data into storytelling and frameworks that improve human decisions and inspire commitment (communication, leadership and implementation);
• To be aware of the limitations of data-driven decisions and the role of human cognitive systems and the ethical and legal constraints (critical thinking).

3.3. Inserção do ciclo de estudos na estratégia institucional de oferta formativa, face à missão institucional e, designadamente, ao projeto educativo, científico e cultural da instituição:

A Nova School of Business and Economics/Faculdade de Economia é uma instituição de ensino superior nas áreas de Economia e Gestão focada na promoção e cocriação de projetos inovadores, no desenvolvimento do talento através de programas rigorosos e pioneiros, no desenvolvimento de investigação de excelência e qualidade reconhecidas internacionalmente, que tenham impacto na sociedade, e no fomento de um ambiente intelectualmente estimulante, internacional e culturalmente diverso. A estratégia da Nova School of Business and Economics baseia-se no crescimento de uma comunidade aberta, de conhecimento e inovação, capaz de inspirar o talento jovem a promover soluções importantes para a transformação do Mundo. Guia-se por cinco valores nucleares: rigor no ensino e investigação, impacto responsável e inclusivo, mundanização para criação de sinergias transculturais, vanguardismo e abertura à inovação e conectividade com a sociedade.
Num mundo cada vez mais influenciado pela tecnologia e pelo acesso à informação, a Ciência dos Dados foi reconhecida como uma área estratégica para a Nova School of Business and Economics, que visa responder à escassez de pessoas que percebem as organizações e os problemas de gestão, e ao mesmo tempo, saibam usar a tecnologia e a informação, para os resolver. O Data Science for Social Good-Europe 2017/2018 (DSSG), organizado com a Universidade de Chicago, tem sido, desde 2017, uma iniciativa com grande impacto positivo nesta área. O Centro para a Tecnologia e Negócio Digital é um dos centros de conhecimento da faculdade que opera na interseção das áreas de Gestão e Tecnologia, para promover a compreensão das tecnologias digitais nas organizações e na sociedade, permitindo o desenvolvimento de novos modelos de negócio, produtos e serviços.
O Mestrado em Análise Avançada de Dados para Gestão assenta na rede de investigação e metodologias do DSSG, bem como dos centros de conhecimento de Economia, Gestão e Finanças.

A combinação destas características permite que os mestres em Análise Avançada de Dados para Gestão adquiram as competências e os conhecimentos que lhes permitam prosseguir uma carreira profissional na área ou continuar os seus estudos a um nível mais avançado.

3.3. Insertion of the study programme in the institutional educational offer strategy, in light of the mission of the institution and its educational, scientific and cultural project:

Nova School of Business and Economics is a higher education institution in the areas of Economics and Business, focused on the promotion and co-creation of innovative projects, on the development of talent through rigorous and pioneer programs, on the development of research with international recognition for excellence, with an impact on society, and in the nurturing of an intellectually stimulating, international and culturally diverse environment. The school's strategy is based on growing an open community of knowledge and innovation, aiming at inspiring young talent to promote solutions to transform the world. It is guided by five nuclear values: rigorous teaching and research, responsible and inclusive impact, worldliness for the creation of cross-cultural synergies, vanguardism and openness to innovation and connectivity with society.

In a world increasingly impacted by technology and access to information, Data Science was recognized as a strategic area to respond to the scarcity of people that understand organizations and management problems and, at the same time, understand how to use technology and data to solve them. Data Science for Social Good-Europe 2017/2018 (DSSG), organized with the University of Chicago, is since 2017 an initiative with a relevant positive impact in this area.
The Center for Digital Business and Technology is one of the school's knowledge centers which operates in the

intersection of the Management and Technology areas, to promote the comprehension of digital technologies in organizations and society as well as to promote the creation of new business models, products and services.
The Master in Data Analytics for Management relies on the DSSG network and research methodologies, as much as in the school's knowledge centers in the Economics, Management and Finance areas.
The combination of these characteristics allow the Master in Data Analytics for Management's graduates to acquire the knowledge and competencies to pursue a professional career in this area or to continue their studies in a more advanced level.

4. Desenvolvimento curricular

4.1. Ramos, opções, perfis, maior/menor ou outras formas de organização em que o ciclo de estudos se estrutura (a preencher apenas quando aplicável)

4.1. Ramos, opções, perfis, maior/menor ou outras formas de organização em que o ciclo de estudos se estrutura (a preencher apenas quando aplicável) / Branches, options, profiles, major/minor or other forms of organisation (if applicable)

Ramos, opções, perfis, maior/menor ou outras formas de organização em que o ciclo de estudos se estrutura:	Branches, options, profiles, major/minor or other forms of organisation:
N/A	N/A

4.2. Estrutura curricular (a repetir para cada um dos percursos alternativos)

Mapa II - N/A

4.2.1. Ramo, opção, perfil, maior/menor ou outra (se aplicável):
N/A

4.2.1. Branch, option, profile, major/minor or other (if applicable):
N/A

4.2.2. Áreas científicas e créditos necessários à obtenção do grau / Scientific areas and credits necessary for awarding the degree

Área Científica / Scientific Area	Sigla / Acronym	ECTS Obrigatórios / Mandatory ECTS	ECTS Minímos optativos* / Minimum Optional ECTS*	Observações / Observations
Gestão	G	48		
Métodos Quantitativos	MQ	10.5		
Economia	E	3.5	0	
Gestão, Métodos Quantitativos, Informática ou Ciências Sociais	G, MQ, I ou A		21	Student must complete CU of the set Elective, obtaining 21 ECTS.
Gestão, Métodos Quantitativos, Economia, Finanças, Informática ou Ciências Sociais	G, MQ, E, F, I ou A		7	Student must complete CU of the set Elective+Elective free, obtaining 7 ECTS.
(5 Items)		**62**	**28**	

4.3 Plano de estudos

Mapa III - N/A - 1.º Ano curricular (1)

4.3.1. Ramo, opção, perfil, maior/menor ou outra (se aplicável):
N/A

4.3.1. Branch, option, profile, major/minor or other (if applicable):
N/A

4.3.2. Ano/semestre/trimestre curricular:

1.º Ano curricular (1)

4.3.3 Plano de Estudos / Study plan

Unidade Curricular / Curricular Unit	Área Científica / Scientific Area (1)	Duração / Duration (2)	Horas Trabalho / Working Hours (3)	Horas Contacto / Contact Hours (4)	ECTS	Observações / Observations (5)
Advanced Data Analisys	MQ	Trimestral	98	TP: 18; OT: 5	3.5	Mandatory
Digital Markets	E	Trimestral	98	TP: 18; OT: 5	3.5	Mandatory
Data Curation	G	Trimestral	98	TP: 18; OT: 5	3.5	Mandatory
Modeling Business Decisions	G	Trimestral	98	TP: 18; OT: 5	3.5	Mandatory
Data Visualization	G	Trimestral	98	TP: 18; OT: 5	3.5	Mandatory
Data Ecosystems and Governance in Organizations	G	Trimestral	98	TP: 18; OT: 5	3.5	Mandatory
Machine Learning	MQ	Semestral	196	TP: 36; OT: 10	7	Mandatory
Personal and Career Development	G	Semestral	112	TP: 112	4	Mandatory
Digital Strategy and Transformation	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Technology Strategy	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Innovation Management	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Open Innovation	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Product Design and Development	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Digital Marketing	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
E-commerce	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Marketing Analytics	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Fintech Ventures	MQ	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Financial Modeling	MQ	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Empirical Methods for Finance	MQ	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Financial Econometrics	MQ	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Big Data Analysis	MQ	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Advanced Programming for Data Science	I	Trimestral	98	TP: 18; OT: 5	3.5	Elective
WEB and Cloud Computing	I	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Social Media and Online Behavior	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Data-Driven Decision Making	MQ	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Project Scoping	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Social Science and Philosophy	A	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Data Science in Industry Verticals	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Entrepreneurial Finance & Venture Capital	F	Semestral	196	TP: 36; OT: 10	7	Elective free
Business Model Innovation	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Corporate Social Responsibility	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Entrepreneurship	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Luxury and Fashion Marketing	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Persusion and Negotiation	G	Semestral	196	TP: 36; OT: 10	7	Elective free
Customer Relationship Management	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Global Supply Chain Management	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Operations Management	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Integrated Marketing Communications	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
International Business	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Sustainble International Business	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
International Corporate Strategy	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Negotiation	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Derivatives	F	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Management of Non Profit	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free

Organizations						
Risk Management	F	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Leadership and Change Management	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Global Business Challenges	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Strategy for the Digital Age	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective
Game Theory	E	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Competition Policy	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free

(50 Items)

Mapa III - N/A - 1.º Ano curricular (2)

4.3.1. Ramo, opção, perfil, maior/menor ou outra (se aplicável):
N/A

4.3.1. Branch, option, profile, major/minor or other (if applicable):
N/A

4.3.2. Ano/semestre/trimestre curricular:
1.º Ano curricular (2)

4.3.3 Plano de Estudos / Study plan

Unidade Curricular / Curricular Unit	Área Científica / Scientific Area (1)	Duração / Duration (2)	Horas Trabalho / Working Hours (3)	Horas Contacto / Contact Hours (4)	ECTS	Observações / Observations (5)
Credit Risk	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Environmental Policy	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Futures and Options	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free
Corporate Valuation	G	Trimestral	98	TP: 18; OT: 5	3.5	Elective free

(4 Items)

Mapa III - N/A - 2.º Ano curricular

4.3.1. Ramo, opção, perfil, maior/menor ou outra (se aplicável):
N/A

4.3.1. Branch, option, profile, major/minor or other (if applicable):
N/A

4.3.2. Ano/semestre/trimestre curricular:
2.º Ano curricular

4.3.3 Plano de Estudos / Study plan

Unidade Curricular / Curricular Unit	Área Científica / Scientific Area (1)	Duração / Duration (2)	Horas Trabalho / Working Hours (3)	Horas Contacto / Contact Hours (4)	ECTS	Observações / Observations (5)
Work Project	G	Semestral	840	TP: 36; OT: 20	30	Mandatory

(1 Item)

4.4. Unidades Curriculares

Mapa IV - Modeling Business Decisions/Otimização

4.4.1.1. Designação da unidade curricular:

Modeling Business Decisions/Otimização

4.4.1.1. Title of curricular unit:
Modeling Business Decisions

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
PATRÍCIA XUFRE GONÇALVES DA SILVA CASQUEIRO/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
There are two main goals for the course:
(1) to improve your ability to think logically about and to structure complex managerial problems;
(2) to improve your ability to develop spreadsheet models that can be used to significantly improve managerial decision-making.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
I. Introduction to Optimisation.
II. Deterministic Models.
Linear Programming Models.
Network Models.
Optimization Models with Integer Variables.
Nonlinear Optimization Models.
III. Stochastic Models.
Inventory Models.
Queueing Models.
Forecasting Models.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The course will be taught by example, using problems from the main functional areas of business – finance, operations and marketing. Developing models of problems from these areas will require you to think about what it is you are trying to do, what the constraints are, what the decision variables are, and how the decision variables relate to both your constraints and your objectives. Your ability to structure complex problems and to derive solutions that can improve your insights and ability to make good management decisions will be one of the skills you take away from the course.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The classes will be taught exclusively in a computational laboratory environment. The course will be delivered through two lectures (1.5 hours each) every week, following a theoretical-practical approach, where the different topics will be presented and discussed through practical examples and the most similar to those occurring in the business environment. The activeparticipation of students will be strongly encouraged in order to provide joint learning.
The final grade will be calculated by taking a weighted sum of the following three components:
-2 Group - Projects (20% each)
- Midterm (20%)
- Final Exam (40%) – A minimum grade of 9 out of 20 in the final exam is required to pass the course.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

Taking into consideration the fundamental purpose of this course, the learning method most suitable to this course is the method of learning-by-examples. Therefore, the classes will take place exclusively in a computational laboratory environment (1 computer per student). In each lecture will be presented a series of several problems, which try to simulate the problems that might occur in a company, its modeling and resolution will becarried out through an active dialogue in-class.

4.4.9. Bibliografia de consulta/existência obrigatória:

Albright, S.C. and Winston, W.L., "Management Science Modeling", 4th edition, Cengage Learning, 2012. Capítulos: 1, 3-7, 9, 13, 14 and 16.
Balakrishnan, N., Render, B. and Stair, Jr., R.M., "Managerial Decision Modeling with Spreadsheets", 3rd edition, Pearson Prentice Hall, 2013. Capítulos: 1-6, 9 and 11.

Mapa IV - Data Curation/Curadoria de Dados

4.4.1.1. Designação da unidade curricular:

Data Curation/Curadoria de Dados

4.4.1.1. Title of curricular unit:

Data Curation

4.4.1.2. Sigla da área científica em que se insere:

G

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:

23

4.4.1.6. ECTS:

3,5

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
QIWEI HAN/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Upon completion of this course, students should be able to:
Knowledge and Understanding
Students will recognize the significance and learn fundamental concepts of data curation for business problems. They will understand the characteristics of various data types and both theoretical and practical issues in data curation from a range of perspectives.
B. Subject-Specific Skills
Students will have hands-on experience using popular programming languages such as Python and SQL to perform daily data curation tasks.
C. General Skills
Student will be able to describe and apply data curation concepts, steps, tools and technologies that are used in today's data science projects. They will also identify critical issues associated with the storage, extraction and manipulation of data.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
This course contains 6 modules that students learn about data curation through hands-on programming exercise. This course will also serve as crash course of Python, the most popular programming language in Big Data era. Most of lectures will be presented using Python/SQL examples.
• Week 1: Introduction to Python for Data Curation.
• Week 2: Data Extraction and Cleaning using Pandas.
• Week 3: Data Wrangling using Pandas.
• Week 4: Data Exploration Analysis using a variety of statistical techniques.
• Week 5: Introduction to Database and SQL.
• Week 6: Build end-to-end workflow using Python to perform reproducible ETL process from reading data from its source to load the processed data into the database.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course serves as the entry point of a series of data science skillset for business analytics in the modern big data era. We will introduce concepts of data curation and management with applications. Students will explore the characteristics of data and perform data curation through hands-on experiences, such as the data extraction, data wrangling, data exploration, database and data science workflow in terms of reproducible Extract-Transform-Load (ETL) processes.

Students will learn essential data duration concepts and apply practical data curation techniques to manage data effectively for business analytics problems.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

Students are required to bring own laptops for in-class exercises and quizzes. Students do not need to have programming experience but programming knowledge, such as R, Matlab, Java, etc would be highly preferred.
This course adopts learning-by-doing culture that allows students to implement data curation process through programming in Python and SQL. Most of class material will be in the Jupyter notebooks to facilitate reproducible practices.

The overall evaluation of performance consists of 4 parts
• Class participation through 5 quizzes (20%)
• 3 bi-weekly assignment (30%)
• Final exam (50%)
Students need to participate in class quizzes for at least 4 times. If students are present in all quizzes, 4 out of 5 quizzes with highest points will be counted.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

This course adopts learning-by-doing culture that allows students to implement data curation process through programming in Python and SQL.

Students need to participate in class quizzes for at least 4 times. This way students will have hands-on experience using popular programming languages to perform daily data curation tasks.

Assignments are issued every two weeks. Through the assignments instructor evaluate the knowledge and understanding about the characteristics of various data types and both theoretical and practical issues in data curation and also if they are able to describe and apply data curation concepts, steps, tools and technologies.

4.4.9. Bibliografia de consulta/existência obrigatória:

This course does not require any textbook, because data science is a rapidly changing field and no textbook may cover all materials we will teach in the course. However, the following book is recommended for your reference:
Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Edition
Python Data Science Handbook Essential Tools for Working with Data, Chapter 1-3

The online resources are quite sufficient. Below students may find the following resources that are useful for self-study and exercises:
Online Data Science Encyclopedia
https://github.com/bulutyazilim/awesome-datascience
Online Python tutorial:
https://pythonprogramming.net/python-fundamental-tutorials/
http://pandas.pydata.org/pandas-docs/stable/tutorials.html
Online SQL tutorial:
http://www.tutorialspoint.com/sql/
Source code of reference books:
https://github.com/wesm/pydata-book
https://nbviewer.jupyter.org/github/jakevdp/PythonDataScienceHandbook/tree/master/notebooks/

Mapa IV - Digital Strategy and Transformation/Estratégia Digital e Transformação

4.4.1.1. Designação da unidade curricular:

Digital Strategy and Transformation/Estratégia Digital e Transformação

4.4.1.1. Title of curricular unit:

Digital Strategy and Transformation

4.4.1.2. Sigla da área científica em que se insere:

G

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
DAVID BERNARDO FERREIRA SANTO/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
- Learn the relevance, size and impact of digital in current society
- Understand the basic concepts of digital transformation
- Understand the challenges of digital transformation and how to overcome them
- Develop a framework to implement digital transformation
- Learn about the the current key technologies that will impact the next decades
- Create a design user experience for websites and app
- Key technologies and trends: bitcoin and block chain, Artificial intelligence, machine learning, 3d scanning and printing, etc.
B. Subject-Specific Skills
- Web analytics and KPIs
- Digital marketing concepts
- Wireframe creation
- Create a hybrid customer journey
- Digital transformation framework
- Digital transformation plan
C. General Skills
- Make the connection between the digital world and general aspects of society

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
- Key digital concepts
- Digital strategy and transformation
- The main technological trends and their impact in society as a whole
- The impact of technology on society

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The course is composed by 4 classes of 4 hour duration each:
Class 1 - The current status of digital and basic concepts.
Class 2 - Creating the hybrid customer journey and its KPIs
Class 3 – Digital strategy and transformation
Class 4 - New trends, challenges and opportunities ahead

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The class is about interaction: teacher to students, students to teacher and students to students. This class is supposed to make you think and learn to think about what it is coming. There is no secret formula, as there are no secret formulas in the real world. Students will be responsible to present in group a key techonological trend to their colleagues as part of the learning process.
Recent and current articles, videos and conferences will be discussed.
ASSESSMENT.
- 30% class participation and homework
- 40% final paper (group work)
- 30% exam
There will be homework assigned in some classes. Homework is due the evening before the class and aims at having students trying to address the issues before they get the solution. Class participation and homework are graded together and detailed evaluation of each component will not be available.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Classes are mandatory and the unjustified absence (major causes only) will reflect on the evaluation. Missing two classes without a major force justification results in the failure of the course. Punctuality to class will be enforced.
Previous qualitative feedback goes all the way from 'The professor is passionate and knowledgeable. One of the best or second best courses I took in my life'' to 'The professor is not as cool as he thinks'.
Students are evaluated according their contribution to the class development. Due to the short duration of the course there will be no grading feedback during the course.

4.4.9. Bibliografia de consulta/existência obrigatória:
Several YouTube videos will be shown in class from conferences.
Articles by the professor, you can find some at:
http://www.jornaldenegocios.pt/opiniao/colunistas/david_bernardo.html
Recommended biography:
- Sapiens, Yuval Noah Harari
- Elon Musk, Ashlee Vance
- Platform revolution, Geoffrey Parker
Lecture slides are supports to the teaching process and are not enough to study for an exam. Students are supposed to attend, pay attention to classes and take the adequate notes. Being PRESENT in class should be enough to prepare for the test.

Mapa IV - Data Visualization/Visualização de Dados

4.4.1.1. Designação da unidade curricular:
Data Visualization/Visualização de Dados

4.4.1.1. Title of curricular unit:
Data Visualization

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOÃO CARLOS GOMES MOURA PIRES/11,5H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
FERNANDO PEDRO REINO DA SILVA BIRRA/11,5H

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Knowledge:
- Classification of data for DV purposes and the different ways it can be encoded using the available visual variables; understand the limitations of combined use of visual variables.
- Understanding the querying process behind a multidimensional data visualization.
- The main interaction techniques.
- The main data visualization techniques for each type of datasets.
- The role of data dimension reduction techniques in the data visualization pipeline.
- The principles of data visualization for analytical purposes.
Skills:
- develop a critical thinking approach to evaluate DV solutions.
- develop the skills to make appropriate usage of DV in data exploration scenarios
- critically evaluate DV or DV systems
Competences:
- choose a set of appropriate data visualization techniques for a given dataset and analytical goals.
- use a DV tool (like Tableau) to build an interactive dashboard.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
The course is organized in 3 topics presented below.

1 - Introduction to Data Visualization
What is DV? What is the main Goal of DV? What is the fundamental idea of DV?
Data Foundations.
Some of important aspects of Human Perception and Information Processing for DV
The Visual Variables.

2 - Visualization Techniques
Visualization Techniques for Multivariate Data
Visualization Techniques for Geospatial Data
Visualization Techniques for Time-Oriented Data
Visualization Techniques for Trees, Graphs, and Networks

3 - Interaction Concepts and Techniques
Interaction Operators, Operands and Spaces (screen, object, data, attributes)
Designing Effective Visualizations
Methodologies for Comparing and Evaluating Visualization Techniques

The hands on and experimentation will be carried out using Tableau software (free and academic licences) and python libraries.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The main objective of this C.U. is to provide the students with an understanding and competences in fundamentals of Interactive Data Visualization: Design Principles, Systems and Components, Type of tasks and interactions and the most relevant data visualization techniques for multivariate data, geospatial data, network data, hierarchal data, textual data, and, in general, data time dependent.

The sylabus includes the interdisciplinary foundations to understand data visualization and the fundamentals of Interactive Data Visualization systems. A broad range of current DV techniques are presented and discussed so the students will have an overview of the available techniques and when they are appropriate. Some of those techniques are addressed at a deeper level, including the usage of modern tools and frameworks to apply and design IDV systems.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Lectures will cover the fundamental topics of the course, including some time for questions and discussion, and will be illustrated with demos that students may replicate afterwards on their own.
The first week will be focused on the first part of the syllabus and address the fundamental concepts and principles. The next 3 weeks will be devoted to explaining and training DV techniques for Multivariate Data, Geospatial Data and for Time-Oriented Data. The last two weeks will overview techniques for other types of data (Trees, Graphs, and Networks) and systematically address the interactivity (roles and techniques) in DV and how to evaluate DV solutions / systems / techniques.
Real datasets will be provided to students and will be used systematically as examples and training scenarios.

The evaluation of this curricular unit will consists of three practical assignments, each contributing to 25% of the final grade, and the remaining 25% will be assessed in a final exam.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
All knowledge outcomes will be assessed in the final exam of the course, that will take place after all the practical assignments have been delivered and discussed with the students. This helps students to master the knowledge outcomes with real hands-on experience.

After learning the fundamentals of DV (in the first week) the students will apply and evaluate those principles in the context of concrete DV techniques for Multivariate Data, Geospatial Data and for Time-Oriented Data. This is important because they will develop the skills to better understand and apply the DV principles in many different scenarios. At the same time, the students will acquire competences on usage and implementation of some DV techniques.

The two last weeks will provide a systematic overview for designing DV solutions and evaluate DV systems. At the same time the students will get more familiar with different data domains.

4.4.9. Bibliografia de consulta/existência obrigatória:
Interactive Data Visualization: Foundations, Techniques, and Applications, Second Edition. Matthew O. Ward, Georges Grinstein, Daniel Keim, 2015, ISBN 9781482257373

Visualization Analysis & Design, Tamara Munzner, 2015, ISBN: 9781466508910
ISBN (e-Book): 9781498707763

Visualization of Time-Oriented Data, Wolfgang Aigner, Silvia Miksch Heidrun Schumann, Christian Tominski, 2011, ISBN: 978-0-85729-078-6

Mapa IV - Technology Strategy/Estratégia de Tecnologia

4.4.1.1. Designação da unidade curricular:

Technology Strategy/Estratégia de Tecnologia

4.4.1.1. Title of curricular unit:
Technology Strategy

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
LEID ZEJNILOVIC/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Understand and relate technology and innovation as strategic decisions in both existing and emerging firms.
• Understand the processes of creating, appropriating, and delivering value in technology markets.
• Know conceptual models and frameworks to help you navigate the complexity and dynamism of technology markets.
B. Subject-Specific Skills
• Use the acquired tools for making strategic technology-related decisions in uncertain and dynamic technology markets: e.g. identify which technology is likely to succeed in markets.
C. General Skills
• Analyze markets, firms, and strategies
• Develop, present, and defend recommendations
• Improve the ability to work in teams

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Class 1+2. Introduction: Technology Strategy, Sources and Adoption of Technology
Class 3+4. Technology Strategy, Sources and Adoption of Technology - Case; Dynamics of Technology - Concepts
Class 5+6. Dynamics of Technology –n
Class 7+8. Network Externalities, Standards, and Technology Substitution – Case; Complementary Assets and Markets for Technology – Concepts
Class 11+12. Technology Evolution and Ecosystems – Case; Disruptive Innovation, Open and Free Innovation – closure

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course is comprised of three components.
1: Introduction to Technology Strategy and Industry Dynamics - We will start by introducing the definitions of technology and technology strategy, and different types of innovations a technology may represent.
2: Creating and Capturing Value from Technology
We will study strategic challenges and opportunities that firms face in competing with their innovations. Students will learn how firms create and capture value, as we cover the concept of uniqueness and complementary assets, network externalities, open and closed standards, and how firms lock-in customers to their technology.
3.Organizing for Technology Innovation in interdependent value chains
We complete the course by expanding our analysis from firms to ecosystems. The goal is to contextualize value creation and value capture in interdependent value chains of business ecosystems.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course follows a seminar format, with sessions being highly interactive, centering around discussions of the assigned cases and readings. The students will need to prepare for the classes by analyzing the case and readings, and when required, do an additional homework. We will also host up to two guest lectures, to reinforce the learning from practical experiences – the guests will be announced during the course.
ASSESSMENT.
Class participation (10%)
Case analyses and a project (30%)
Exam (60%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Technology Strategy course is for students with interest in managing, analyzing, and developing technology-based firms. The aims of the course are three-fold: (1) to provide you with an understanding of the range, scope, and complexity of technology management in the context of corporate strategic decision-making; (2) to provide insights into key strategic drivers of value creation and appropriation of established and emerging firms competing through technological innovation; (3) to arm you with a set of actionable tools to facilitate the selection of an appropriate technology strategy in uncertain and dynamic technology market. The students will have an opportunity to learn how to identify technologies that are likely to succeed in a market, and which firms are likely to profit from technology innovation. We will use a combination of theory and real- world examples through case studies, simulations, and readings. Note that no technical background is required for participating in this course, as we will focus on strategic and not on technical issues.

Active contribution is encouraged and expected, and it directly influences the learning outcomes. It is essential that all students study the assigned material, complete any other assignment before class, and participate in discussions during class offering original and thoughtful analysis supported by evidence and logic. Students may proactively participate in the discussion or the lecturer may call upon any student to provide their interpretation.

Students are required to write reports of case analysis of two cases of their choosing. The case reports should each be 4-5 pages long, plus appendices, and are due at the beginning of class on the day the chosen case is scheduled for a discussion. These reports should be written in groups, to improve the ability to work in teams
The students may also choose to work on a technology strategy project in companies. This activity would substitute the case study reports. You will need to provide the project proposal and the plan of the execution in the first two weeks of the course. This way students show they understand and relate technology and innovation as strategic decisions in an existing firms.

4.4.9. Bibliografia de consulta/existência obrigatória:
Readings:
David Collis and Michael Rukstad, "Can you say what your strategy is?" (HBS Reprint R0804E)
Shilling, M., and Esmundo, M., Technology S-curves in renewable energy alternatives: Analysis and implications for industry and government, Energy Policy, 2009
Carl Shapiro & Hal Varian, "Networks and Positive Feedback," Chapter 7 in Information
J. Gans and S. Stern, 2003. "The product market and the market for "ideas": commercialization strategies for technology entrepreneurs." Research Policy 32: 333–350.

Adner, R. 2006, "Match your innovation strategy to your innovation ecosystem," Harvard Business Review, 84(4) 98-107.
Christensen, C. and Bower, J.L., 1996. Customer Power, Strategic Investment, and the Failure of Leading Firms." Strategic Management Journal, 17 (3), pp. 197 – 218
Eric von Hippel. "Free Innovation." MIT Press, 2016, chapter 1
Chesbrough, H.W., 2003. "The Era of Open Innovation." Sloan Management Review, 44(3): 35-41.

Mapa IV - Digital Markets/Mercados Digitais

4.4.1.1. Designação da unidade curricular:
Digital Markets/Mercados Digitais

4.4.1.1. Title of curricular unit:
Digital Markets

4.4.1.2. Sigla da área científica em que se insere:
E

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
STEFFEN HEINZ HOERNIG/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Understand pricing and competitive strategies in digital markets
Understand demand- and supply-side economies of scale and their competitive effects
Be able to analyse competitive and regulatory issues in platform markets
Be able to judge competitive and ethical issues in artificial intelligence decision making

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

1. Menus and Individualized Pricing
2. Bundling
3. The "Law of Many Prices"
4. Competition with Network Effects
5. Platforms and the "Economics of Free"
6. Net Neutrality and Zero-Rating
7. Competition and Algorithms

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

This course covers the main microeconomic issues that concern the digital economy and need to be understood by entrepreneurs, digital service creators and other participants in digital markets.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The course will have 12 classes, two lectures of 1.5 hours each every week, where the different topics will be presented through a methodological framework and a discussion of practical cases. Active participation of students will be strongly encouraged.
The final grade will be calculated by taking a weighted sum of the following three components:
- 2 group projects (20% each)
- participation (10%)
- final exam (50%, minimum grade of 8.0 out of 20)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

Taking into consideration the fundamental purpose of this course, the learning method most suitable to this course is the method of learning-by-examples. Therefore, the classes will take place exclusively in a computational laboratory environment (1 computer per student). In each lecture will be presented a series of several problems, which try to simulate the problems that might occur in a company, its modeling and resolution will be carried out through an active dialogue in-class.

4.4.9. Bibliografia de consulta/existência obrigatória:

Paul Belleflamme & Martin Peitz, Industrial Organization: Markets and Strategies, 2015.
Harald Øverby & Jan Audestad , Digital Economics: How Information and Communication Technology is Shaping Markets, Businesses, and Innovation, 2018.

Mapa IV - Digital Marketing/Marketing Digital

4.4.1.1. Designação da unidade curricular:

Digital Marketing/Marketing Digital

4.4.1.1. Title of curricular unit:

Marketing Digital

4.4.1.2. Sigla da área científica em que se insere:

G

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
ANTÓNIO MARINHO DIAS TORRES NETO/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Digital marketing landscape
• Consumer decision journey
• Customer lifetime value
• Marketing communications
• Virality drivers
B. Subject-Specific Skills
• Comparison of digital marketing tools
• Definition of objectives for digital marketing programs
• Evaluation of the financial impact of digital marketing programs
• Planning, implementation, and analysis of digital marketing programs
• Analysis of viral marketing dynamics
C. General Skills
• Analytical thinking
• Presentation skills
• Group dynamics and teamwork

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
This course is offered in partnership with Google and Nova Venture Lab. In order to choose a client and have access to Google AdWords, it is essential to be present in the first session.
1.Introduction/Digital Marketing Framework/AdWords Planning
2. Consumer Decision Journey/Customer Lifetime Value/Marketing Communications (Case Study)
3. Campaign Proposal/AdWords Analysis
4. Branding in the Digital Age (Case Study)
5. Viral Marketing (Case Study)
6. Campaign Analysis
7. Conclusions

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

This course aims to provide students with a broad understanding of digital marketing, more specifically, the process by which companies deploy promotional tactics over the internet (or other digital media) to communicate with customers aiming at influencing their behaviour. It covers both theoretical foundations and practical applications. Its foundation is a purpose-developed digital marketing framework (DSDW), supported by proven marketing models (CDJ, CLV, 6Ms, and STEPPS), that aims to enable a structured and enduring understanding of the topic beyond current techniques and tools. Students, then, deploy these tools to plan, implement, and analyse a real digital marketing campaign, in partnership with Google and Nova Venture Lab.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

This course is delivered through a three-pronged approach:
(1) theory;
(2) case studies;
(3) group project.
ASSESSMENT
A. Individual Assignments
• Final exam 40%
• Class participation 10%
B. Group Assignments
• Campaign Proposal 20%
• Campaign Analysis 30%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

This course is delivered through a three-pronged approach: (1) theory: a purpose-developed digital marketing framework (DSDW), supported by proven marketing models (CDJ, CLV, 6Ms, and STEPPS), enables a structured and enduring understanding of the topic beyond current techniques and tools; (2) case studies: class discussion of relevant case studies and other examples enables a concrete view of the topic; and (3) group project: planning, implementation, and analysis of a real digital marketing campaign, in partnership with Google and Nova Venture Lab, enable a truly hands-on approach to the topic.

4.4.9. Bibliografia de consulta/existência obrigatória:

A. Case Studies
• (Bazaar) Measuring ROI on Sponsored Search Ads. CBS 2017 (CU181).
• The Hunger Games: Catching Fire. Kellogg 2016 (KEL964).
• Squatty Potty: Assessing Digital Marketing Campaign Data. Ivey 2018 (W18005).
B. Notes and Articles
• Holt, Douglas (2016). Branding in the Age of Social Media. HBR (R1603B).
• Edelman, David (2010). Branding in the Digital Age. HBR (R1012C).
• Ofek, Elie (2016). Customer Profitability and Lifetime Value. HBS (9-503-019).
• Teixeira, Thales (2012). Marketing Communications. HBS (9-513-041).
C. Useful book
• Berger, Jonah (2013). Contagious: Why Things Catch On. Simon & Schuster.

Mapa IV - Open Innovation/Inovação Aberta

4.4.1.1. Designação da unidade curricular:

Open Innovation/Inovação Aberta

4.4.1.1. Title of curricular unit:

Open Innovation

4.4.1.2. Sigla da área científica em que se insere:

G

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
LEID ZEJNILOVIC/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Distinguish between open innovation and traditional forms of innovation and recognize examples in their professional and personal environment
• Understand the concept and methods of open and user innovation and the related potential implications for business and innovation management
• Understand the opportunities, challenges and contingency factors related to open and user innovation
B. Subject-Specific Skills
• Use a set of tools to identify which innovation approach is likely to succeed, given the objective and the resources,
• Plan and critically evaluate open innovation projects
C. General Skills
• Analyze open innovation strategies
• Develop, present, and defend recommendations
• Improve the ability to work in teams

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Class 1: The Open and User Innovation Paradigm, Open Business models
Class 2: Finding Innovations: Lead Users & Toolkits
Class 3: Finding Innovations: Contests, and Collaborative communities
Class 4: The "Underground" innovation, Human Computation and Remixing
Class 5: Open innovation in incumbent firms, collaboration, and Intellectual property strategies for open innovation
Class 6: Challenges: Commercialization and Communities, Resistance to innovation

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Open innovation course prepares students for innovation management in the world where innovation is democratized: developed by producers, and increasingly more by single-user individuals or firms, and in communities and innovation ecosystems. It equips students with an understanding of open and user innovation, and how new and emerging models of innovation impact the value creation and value appropriation in the face of technological changes. We will explore how

organizations interact with the internal/external sources of knowledge, and the challenges in structuring internal processes to systematically benefit from these interactions. The course will facilitate the generation of insights on different approaches to organizing and facilitating open and user innovation, using real-world examples and experiences. The aim is gave students tools to identify which open innovation approaches are likely to succeed in markets and how to best profit from it in entrepreneurial/established firms.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The course follows a seminar format, with sessions being highly interactive, centering around discussions of the assigned cases and readings. The students will need to prepare the sessions by analyzing the case and the assigned readings, and when required do a homework. We will also host up to three guest lectures, to reinforce the learning from practical experiences – the guests will be announced during the course.
ASSESSMENT.
1. Class participation (10%)
2. Case analyses and a project (30%)
3. Exam (60%)
The final grade is calculated according the following formula:
Final grade = 60% Final Exam + 30% Case studies (project) + 10% Class Participation

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

This course is organized in two components:
Component 1: Open innovation Methods
In this first three weeks, we will review the state of the art in open and user innovation, theoretical concepts (week 1) and the methods for finding innovations and organizing for open innovation. Among other topics, we will consider the lead-user method, Innovation toolkits, Crowdsourcing, and User Communities.
Component 2: Open Innovation Applications and Challenges
In the last three weeks, we will focus on the applications of open and user innovation, examples, and the associated challenges. We will review different domains of practice of open innovation, the user communities, the interactions between firms and users, and the interactions among organizations. We will also review the challenges related to the intellectual property in open innovation, and the tensions between commercial and community interests.

Active contribution is encouraged and expected, and it directly influences the learning outcomes. It is essential that all students study the assigned material, complete any other assignment before class, and participate in discussions during class offering original and thoughtful analysis supported by evidence and logic. Students may proactively participate in the discussion or the lecturer may call upon any student to provide their own interpretation.

Students are required to write analyses of two cases of their own choosing. Your case analyses should each be 4-5 pages long, plus appendices, and are due at the beginning of class on the day the chosen case is to be discussed. These cases should be written in groups; group sizes will be determined in the first class of the course.
The students may also choose to work on an open innovation project in companies. This activity would substitute the second and third case study. You will need to provide the project proposal and the plan of the execution in the first week of the course.

There will be a final examination (open book, open notes) covering the entire course. The grade in the exam must be higher or equal to 7,5/20 to pass the course.

4.4.9. Bibliografia de consulta/existência obrigatória:

1. von Hippel, Eric. Free Innovation. Cambridge, Massachusetts: The MIT Press, 2016. [Free Online from November 2016]
2. von Hippel, Eric. Democratizing Innovation. Cambridge, Massachusetts: The MIT Press, 2016. [Free Online from November 2016]
3. Chesbrough, H., Vanhaverbeke, W., West, J. New Frontiers in Open Innovation. Oxford University Press, 2015

Other readings are specified in the detailed schedule.

Mapa IV - Product Design and Development/Desenho e Desenvolvimento de Produto

4.4.1.1. Designação da unidade curricular:

Product Design and Development/Desenho e Desenvolvimento de Produto

4.4.1.1. Title of curricular unit:
Product Design and Development

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOÃO NUNO LOPES DE CASTRO/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
The product design process
The role of the product designer and organizations
Customer requirements or opportunities
Product benchmarking
Concept generation and testing
Design considerations (for materials, for service, for environment, for safety, …)
Business case
Prototyping
Pitching and Storytelling
Intellectual Property Rights
Project Management
B. Subject-Specific Skills
Creativity
Estimation
Benchmarking
Sketching
Brainstorming
Prototyping
Storytelling
C. General Skills
Teamwork
Analytical thinking
Multi-disciplinary
Project management

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

Week 1 – Introduction to new product development process
The role of PD in organizations and case studies
Review of the objectives of the course
The design brief: the challenge
Project management
Week 2 – Understanding customer requirements,
Concept generation methods
Week 3 – Deep dive into the design challenge
Week 4 –Design considerations, creativity
Week 5 - The business case, Prototyping
Storytelling and pitching
Intellectual Property Rights
Week 6 – Pitch day

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The aim of this course is to guide the students through the steps of new product development, help to familiarize with several concepts and methods for ideation, creation, testing and prototyping. Students will work in groups and lead a design process through the front-end steps, from market discovery to prototyping and presentation.
At the end of the course students should be able to understand the different steps, what they contribute and how the design process creates a product or service that can be launched in the market.
The design challenge to be developed by students along this course will be presented in the first class.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The material of this course will be delivered in class through topical presentations which will introduce the different concepts and methods for each stage of a design process. Most material will be tested and applied after class by student teams going through the class challenge. Some time in class will be reserved for discussion of findings and shared experiences.
At the end of the course student teams will present their product concept to a jury for evaluation and critique.
ASSESSMENT.
Individual elements:
Class participation (10%)
Essay (30% - submit by end of exam period)
Team elements:
Week 3 workbook: idea generation (10%) – submit by the end of class 5
Week 4 workbook: selected idea and business case (10%) – submit by the end of class 6
Final Presentation to jury (40% - done in class 6)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

The material of this course will be delivered in class through topical presentations which will introduce the different concepts and methods for each stage of a design process. This way instructor evaluate students knowledge and understanding about the product design process, the role of the product designer and organizations, customer requirements and product benchmarking.
At the end of the course students should be able to understand the different steps, what they contribute and how the design process creates a product or service that can be launched in the market.

The design challenge to be developed by students along this course will be presented in the first class. At the end of the course student teams will present their product concept to a jury for evaluation and critique. Teamwork, analytical thinking and project management are general skills that students must demonstrate.

4.4.9. Bibliografia de consulta/existência obrigatória:

"Product Design and Development" - 6th Edition, by Karl Ulrich and Steven Eppinger
"Product Design Process - The manual for digital product design and project management" by Tiago Franco and Beatriz Costa

Mapa IV - Marketing Analytics/Análise de Marketing

4.4.1.1. Designação da unidade curricular:
Marketing Analytics/Análise de Marketing

4.4.1.1. Title of curricular unit:
Marketing Analytics

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
CARLOS DANIEL RODRIGUES DE ASSUNÇÃO SANTOS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Upon completion of this course, students should be able to:
A. Knowledge and Understanding
Technical knowledge of statistical techniques
Understand the application, advantages and shortcomings of the different approaches to conduct empirical work
B. Subject-Specific Skills
Critical analysis of empirical work
Review and assessment of widely used statistical techniques
Application of models to study various business problems
C. General Skills
Analytical and methodological thinking
Data driven decision making
Objective measurement of business phenomena

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:

1. Digital vs. Traditional Marketing Analytics.
2. Market segmentation.
3. Summarizing and interpreting large amounts of data.
4. Targeting your customers.
5. Evaluating products: Conjoint
6. How to position against the competition: MDS

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The course aim is to equip students with the different methods that will be covered during the course.
This course will equip students with the tools to conduct quantitative marketing research. It helps managers to take a data driven approach to solve marketing problems. We will cover some of the most common marketing techniques including models for new product development, product evaluation, STP (Segmentation, targeting and positioning), and exploratory analysis.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

Applied lectures with empirical case studies and student field work.
ASSESSMENT. The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.
Final Exam (50%) Assignment (50%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

The technical knowledge of statistical techniques and the understanding of the application, advantages and shortcomings of the different approaches to conduct empirical work: assessed by the level of participation of in class participation and questions in exam.

The Subject-Specific Skills and General skills are assessed by cases studies resolutions.

4.4.9. Bibliografia de consulta/existência obrigatória:

Hair, Black, Babin, Anderson, Tatham, Multivariate Data Analysis, Prentice Hall
Malhotra, N., Marketing Research, Pearson [Chapter 7]
Singleton, R. and B. Straits, Approaches to Social Research, OUP, [Ch9 for 5th ed, Ch8 for 4th ed]

Mapa IV - Empirical Methods for Finance/Métodos Empíricos para Finanças

4.4.1.1. Designação da unidade curricular:

Empirical Methods for Finance/Métodos Empíricos para Finanças

4.4.1.1. Title of curricular unit:

Empirical Methods for Finance

4.4.1.2. Sigla da área científica em que se insere:

MQ

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
PAULO MANUEL MARQUES RODRIGUES/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Upon completion of this unit, students will be able to demonstrate an understanding of how econometric methods can and should be applied to explore a range of issues. In specific, students will be able to,
in terms of knowledge and understanding
- demonstrate understanding of verbal, graphical, mathematical and econometric representation of economic and financial ideas and analysis, including the relationship between them
- show understanding of relevant mathematical and statistical techniques
- demonstrate more extensive knowledge and skills of quantitative or theoretical modeling areas of economics, finance and econometrics.
in terms of subject-specific skills
- become familiar with main features of econometrics
- study particular types of models and their special features
- conduct applied independent econometric research
in terms of general skills
- select and apply appropriate techniques to solve problems.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
I - Financial Regression Analysis
I.1 - Simple regression.
I.2 - Multivariate regression.
I.3 - Inference
I.4 - Model specification tests.
I.5 - Instrumental variable regression.
I.6 - Panel Data Regression Methods

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course introduces some key topics in empirical finance. It is designed to help students understand and apply several important contributions as well as introduce the quantitative tools used in the real world by analyst, managers and other professionals in finance. As a consequence of the regulatory changes (e.g., Basel III Accord) there is a growing demand in the financial industry for people with quantitative skills who are able to understand and apply these techniques on financial data, analyze results, and elaborate reports. Furthermore, the ability to

synthesize information into a few, easy to interpret statistics is an invaluable analytical tool. This course will emphasize solid foundations and major empirical applications with real data. Students will be required to use real data in exercises and to discuss and analyze the results in the classroom. Students will also be introduced to programming in STATA.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
While lectures cover the core materials, it is important that students supplement classroom time with pre-class preparation, through independent study. Background reading is expected.

ASSESSMENT
Students will be assessed on three assignments (30%) and a final exam (70% - minimum grade requirement 7).

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Individual assignments consist of a set of short exercises, problems, and responses to questions related to topics discussed during the classes. Individual assignment will help students understand the core concepts provided in the course, and develop critical analysis.

The individual assignments contributes to develop students' general skills, namely communication; the use of information technology, access and consultation of databases of financial information, develops critical analysis and select and apply appropriate techniques to solve problems.

4.4.9. Bibliografia de consulta/existência obrigatória:
1. Brooks, C. (2014) Introductory Econometrics for Finance, 3rd/e. Cambridge University Press, New York;
2. Campbell, Lo and MacKinlay,(1997) The Econometrics of Financial Markets" Princeton University Press;
3. Gourieroux, C. and J. Jasiak (2001) Financial Econometrics, Princeton University Press;
4. Hamilton, James (1994), Time Series Analysis, Princeton University Press;
5. Tsay, Ruey S. (2002), Analysis of Financial Data, Wiley;
6. Wang, P. (2009) Financial Econometrics, 2nd Ed. Routledge;
7. Wilmott, Paul (2007) Paul Wilmott introduces quantitative finance, 2/e., John Wiley & Sons Ltd.

Mapa IV - Financial Modelling/Modelação Financeira

4.4.1.1. Designação da unidade curricular:
Financial Modelling/Modelação Financeira

4.4.1.1. Title of curricular unit:
Financial Modelling

4.4.1.2. Sigla da área científica em que se insere:
MQ

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
AFONSO FUZETA DA PONTE DA CUNHA DE EÇA/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Use advanced Excel functions for financial modelling
B. Use VBA to enhance Excel experience for financial modelling
C. Matlab as a natural complement for financial modelling

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Class 1 Introduction to the course and principles of model building
Class 2 Data sourcing
Class 3 Analysing returns I
Class 4 Analysing returns II
Class 5 Pricing with discounted cash flow methods
Class 6 Optimization I
Class 7 Introduction to VBA I
Class 8 Introduction to VBA II
Class 9 Optimization with VBA
Class 10 Pricing assets by simulation
Class 11 Estimating expected returns
Class 12 Introduction to Matl

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course is designed to provide students with a strong foundation in Excel and VBA tools for financial modelling. We will also cover some basic Matlab functionalities. Broad topics include Excel functions (financial, arithmetic, text, lookup and array), databases and tables, Bloomberg data and excel, VBA to enhance excel experience and an introduction to Matlab. We will seek a balance between describing Excel tools, developing VBA code and their applicability to financial modelling. Emphasis will be on problem solving and lectures will concentrate on practical examples to describe the tools and their applicability.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
• Lectures: will concentrate on financial applications to describe the required tools and their applicability
• Assigned readings: book chapters
• Group assignments: Two assignments
• Final exam: will cover lectures, readings assigned in the textbook, additional readings, and materials distributed during class time. The exams will be open book.
ASSESSMENT
The final grade will be a weighted average of the grades in the assignments:

• Group assignments (2 x 25%) 50%
• Exam 50%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
All the the intended learning outcome are assessed by training questions solutions provided by the students (out of class work), assessed by the level of participation of in-class discussions and assessed by questions in exam.
The use of advanced Excel functions for financial modelling and the use of VBA to enhance Excel experience for financial modelling are assessed by the group assignment and the appliance of assigned readings.

4.4.9. Bibliografia de consulta/existência obrigatória:
The textbook is: Rees, M., Financial modelling in practice
Lecture notes and proposed problem sets

Mapa IV - E-commerce

4.4.1.1. Designação da unidade curricular:
E-commerce

4.4.1.1. Title of curricular unit:
E-commerce

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
DAVID BERNARDO FERREIRA SANTO/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Make a high level viability assessment of online business models

• Understand the key components of the ecommerce value chain and how they relate to each other
• Develop key performance indicators (KPIs) for an online business
• Create and manage a marketing plan for an online business
• Understand the concept and principles of omnichannel
B. Subject-Specific Skills
• E-marketing and analytics
• Online design and user experience principles
• IT management
• Back office: Operations & Logistics, Customer Service and Legal Aspects
• Budget tools for the online industry
C. General Skills
• Industry resources

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
- Introduction and basic concepts: key concepts and terminology, main business models, high level viability assessment, industry resources
- The relevance of Digital (similar to what is taught at digital strategy and transformation course intro)
- Marketing and analytics: marketing framework, KPIs, SEM, SEO, content generation, e-mail marketing, social media, web analytics
- Design: design principles, site optimization and user experience (UX), social commerce
- IT: IT elements, making a request for proposal, understanding IT people
- Operations and logistics: payment methods, inventory, logistic models, reversed logistics
- Customer service: key customer service variables
- Legal aspects: customer rights, privacy policies copyright and intellectual property, domains, database legislation

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The course replicates the creation of an e-commerce company taking the class through the major aspects of the value chain, understanding the relation between the different areas. The approach will be from the general manager's perspective, practical and entrepreneurial, providing the tools and knowledge to build a successful e-commerce operation either as a stand-alone operation or as part of a larger corporation. Approximately half of the course will focus on e-marketing and how it integrates with the other areas of the company. Being a concentrated course during the summer period there will be an afternoon outing for a group project focused on the tourism online industry.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The class will focus on introducing the framework and basic concepts of e-commerce and marketing for digital businesses and illustrate them with current cases and examples. Students will be asked to develop written solutions for exercises presented in class and will be given, further resources in every topic to allow them to develop in depth if desired.
Class participation and active discussion is highly encouraged and rewarded. Final project will be an ecommerce sector study for future publication.
This class is about continuous interaction between the students. The course is very intensive and homework will be highly practical with real life application.
There will be a final exam based on the content taught in class.
Assessment
- 30% - Written exam (individual)
- 40% - Final blog post
- 30% - Class participation and written assignments contribution (individual and group)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The course replicates the creation of an e-commerce company taking the class through the major aspects of the value chain, understanding the relation between the different areas.

There will be homework assigned in some classes (sometimes before the class). Homework is due before the class the

morning before class and aims to have students trying to address the issues before they get the solution. Homework is graded as follows (20 – Went above what was required; 15 – Did what was required; 10 – Presented part of what was required; 5 – minimum effort; 0 – didn't present the homework or what was required). Students are evaluated according their contribution to the class development. Classes are mandatory and the unjustified absence (major causes only) will reflect on the evaluation. Missing two classes without a major force justification results in the failure of the course. Punctuality to class will be enforced.
Presentations are only made available after the classes.
There is no individual revision of homework grading and correction is made in class.

The experience can be sometimes less traditional and not for everyone. Qualitative feedback goes all the way from 'The professor is passionate and knowledgeable. One of the best or second best courses I took in my life'' to 'The professor is not as cool as he thinks'.

4.4.9. Bibliografia de consulta/existência obrigatória:
Articles, reference books and cases will be provided throughout the course. Students that want to prepare are recommended the following readings:
- Google adwords and Google analytics tutorials
- Email marketing tutorials
- Facebook insights tutorials
Articles and lecture slides will be distributed via the course web site after the classes.

Mapa IV - Fintech Ventures

4.4.1.1. Designação da unidade curricular:
Fintech Ventures

4.4.1.1. Title of curricular unit:
Fintech Ventures

4.4.1.2. Sigla da área científica em que se insere:
MQ

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
AFONSO FUZETA DA PONTE DA CUNHA DE EÇA/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):

High margins, underserved customers, and accumulated inefficiencies have made the financial services industry a perfect target for entrepreneurs and innovators. Dozens of digital disruptors are giving consumers and companies cheaper, better, or entirely new ways to manage their financial lives. This is an advanced entrepreneurship class that is sector focused to go beyond general entrepreneurship concepts and do a deeper dive on the special challenges in the Financial Services industry and how to best address them. Students will learn through a mix of lectures, guest speakers and exercises while building their own team projects

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

Class 1 - FinTech Overview
Class 2 – Regulatory and legal frameworks
Class 3 – Payments 1.0
Class 4 – Payments 2.0
Class 5 – Lending Marketplaces I
Class 6 – Other Marketplaces II
Class 7 – Artificial intelligence in Finance
Class 8 – Blockchain basics
Class 9 – Blockchain and cryptocurrencies
Class 10 – Digital Identity
Class 11 – VC and M&A trends in the Fintech space
Class 12 – RegTech and InsurTech

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

• Understand the status of the Fintech landscape, industry drivers and future trends.
• Acknowledge the tools to evaluate Fintech Ventures (internal or external) using the lens of entrepreneurs, investors and big corporations.
• Get to know real examples of financial technology that are solving current problems of customers and companies.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

• Lectures: will concentrate on financial applications to describe the required tools and their applicability
• Assigned readings: book chapters
• Group assignments: Two assignments
• Final exam: will cover lectures, readings assigned in the textbook, additional readings, and materials distributed during class time. The exams will be open book.
ASSESSMENT
The final grade will be a weighted average of the grades in the assignments:
• Group assignments (2 x 25%) 50%
• Exam 50%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

Students, through a mix of lectures, guest speakers and exercises and while building their own team projects, will learn the general entrepreneurship concepts and practice the best response to the major challenges in the Financial Services industry.

4.4.9. Bibliografia de consulta/existência obrigatória:

- Disciplined Entrepreneurship: 24 Steps to a Successful Startup (Wiley, 1st Edition), William Aulet, ISBN 1118692284
- The Future of Finance. Part 1, 2 and 3, Goldman Sachs Equity Research,
- The Future of Financial Services, World Economic Forum
- The Future of Financial Infrastructure, World Economic Forum
- Next Generation Finance: Adapting the financial services industry to changes in technology, regulation and consumer

behavior, Paul D. Stallard, Robert Lempk
- Breaking Banks – The Innovators, Rogues and Strategists, Brett King
- The 50 Best Fintech Innovator Report, KPMG, AWI Limited,
- The Fintech 2.0 paper, Santander Innoventures
- The Lean Startup, Eric Rie
- The Four Steps to the Epiphany: Successful Strategies for Products that Win, Steve Blank
- The Age of Cryptocurrency: How Bitcoin and Digital Money are challenging the Global Economic Order, Paul Vigna, Michael Casey
- A Blueprint for Digital Identity, World Economic Forum

Mapa IV - Financial Econometrics/Econometria Financeira

4.4.1.1. Designação da unidade curricular:
Financial Econometrics/Econometria Financeira

4.4.1.1. Title of curricular unit:
Financial Econometrics

4.4.1.2. Sigla da área científica em que se insere:
MQ

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
PAULO MANUEL MARQUES RODRIGUES/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
This course is designed to help students understand and apply several important contributions in Empirical Finance as well as the quantitative tools used in the real world by analyst, managers and other professionals in finance. As a consequence of the regulatory changes (e.g., Basel III Accord) there is a growing demand in the financial industry for people with quantitative skills who are able to understand and apply these techniques on financial data, analyze results, and elaborate reports. Furthermore, the ability to synthesize information into a few, easy to interpret statistics is an invaluable analytical tool.
This high-paced course will discuss some of the quantitative techniques nowadays considered as state of the art by practitioners of financial markets, such as volatility modeling and forecasting; and in corporate finance. Students will be required to use real data in exercises and to discuss and analyze the results in the classroom.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1. The Characteristics of Financial Data
2. Time Series Analysis and Forecasting
3. Modelling and Forecasting Volatility
4. VaR and Expected Shortfall or Panel Data

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
N/A

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
While lectures cover the core materials, it is important that students supplement classroom time with pre-class preparation, through independent study. Background reading is expected.

ASSESSMENT
Students will be assessed on three assignments (10%, 10%, 15%) and a final exam (65% - minimum grade requirement 7).

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Individual assignments consist of a set of short exercises, problems, and responses to questions related to topics discussed during the classes. Individual assignment will help students understand the core concepts provided in the course, and develop critical analysis.

The individual assignments contributes to develop students' general skills, namely communication; the use of information technology, access and consultation of databases of financial information, develops critical analysis and select and apply appropriate techniques to solve problems.

4.4.9. Bibliografia de consulta/existência obrigatória:
1. Brooks, C. (2014) Introductory Econometrics for Finance, 3rd/e. Cambridge University Press, New York;

2. Campbell, Lo and MacKinlay,(1997) The Econometrics of Financial Markets" Princeton University Press;

3. Gourieroux, C. and J. Jasiak (2001) Financial Econometrics, Princeton University Press;

4. Hamilton, James (1994), Time Series Analysis, Princeton University Press;

5. Tsay, Ruey S. (2002), Analysis of Financial Data, Wiley;

6. Wang, P. (2009) Financial Econometrics, 2nd Ed. Routledge;

7. Wilmott, Paul (2007) Paul Wilmott introduces quantitative finance, 2/e., John Wiley & Sons Ltd.

Mapa IV - Big Data Analysis/Análise de Big Data

4.4.1.1. Designação da unidade curricular:
Big Data Analysis/Análise de Big Data

4.4.1.1. Title of curricular unit:
Big Data Analysis

4.4.1.2. Sigla da área científica em que se insere:
MQ

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
CARLOS DANIEL RODRIGUES DE ASSUNÇÃO SANTOS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
To obtain an understanding and ability to use statistical tools to analyze quantitative Big Data.

B. Subject-Specific Skills
- Define and identify different types of data structures.
- Learn different solutions to data analysis.
- Apply existing techniques to real data problems.
- Analyse complex data problems.

C. General Skills
- Understand the limitations of data mining techniques
- Develop a critical attitude towards data results
- Critically assess the value of information.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1. Big data in Business
2. Data preprocessing and exploration
3. Description and Prediction (Lasso and Ridge)
4. Decision trees

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The course aim is to equip students with the different methods that will be covered during the course.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Applied lectures with empirical case studies.

ASSESSMENT.
The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.

Final Exam (50%)
Cases (50%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Knowledge and use of statistical tools to analyze quantitative Big Data: assessed by the level of participation of in class participation and questions in exam.

The Subject-Specific Skills and General skills are assessed by cases resolutions.

4.4.9. Bibliografia de consulta/existência obrigatória:
Dean, J. (2014) Big Data, Data Mining and Machine Learning, Wiley (JD) Linoff and Berry (2011) Data Mining Techniques, 3rd edition, Wiley (LB)
James, G., D. Witten, T. Hastie and R. Tibshirani (2013) An Introduction to Statistical Learning with applications in R, Springer (ISL)
Tan, P., M. Steinbach, V. Kumar, (2006) Introduction to Data Mining, Addison Wesley (IDM)

Mapa IV - Entrepreneurial Finance & Venture Capital/Capital de Risco e Empreendedorismo

4.4.1.1. Designação da unidade curricular:
Entrepreneurial Finance & Venture Capital/Capital de Risco e Empreendedorismo

4.4.1.1. Title of curricular unit:
Entrepreneurial Finance & Venture Capital

4.4.1.2. Sigla da área científica em que se insere:
F

4.4.1.3. Duração:
Semestral

4.4.1.4. Horas de trabalho:
196

4.4.1.5. Horas de contacto:
46

4.4.1.6. ECTS:
7

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
FRANCISCO PIZARRO BELEZA RODRIGUES QUEIRÓ/46h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
This course is designed for students who plan to get involved with new ventures - as founders, early employees, advisors or investors. Students will develop tools to evaluate investment and financing decisions in entrepreneurial settings.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
We will follow a startup's path from founding through the stages of new venture finance. The course will be structured around three modules.
1. Identifying and evaluating opportunities
o People, market, product, business model and context
o Financial implications of business models
o Valuation
o Experimentation, real options and multistage finance
2. Assessing financing alternatives
o Deal structure and terms
o Seed stage finance: search funds, angels, accelerators
o Venture capital
o Later stage financing
3. Realizing returns
o Selling the venture vs IPO vs staying private

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course is designed for students who plan to get involved with new ventures.
The course is structured following a startup's path from founding through the stages of new venture finance. This way students can learn the subject from an angle of either an entrepreneur or a venture capitalist.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course relies extensively on class discussion of case studies, and therefore requires substantial preparation in advance of each class. In order to encourage and reward discussion, class participation will be a key component of grading. In addition, you will be required to submit a 1-2 page memo of analysis and recommendations about each case before it is discussed in class. You may work in groups of up to four people on these memos. Case discussions will be supplemented with lectures, simulations, guest speakers and class exercises.
ASSESSMENT.
• Class participation: 33%
• Case memos: 11%
• In class exercises (individual): 11%
• Final exam: 45%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

The format of the course will combine classroom lecture, guest speaker, and site visits. Classroom lecture is case based. Before-class preparation and in-class participation are highly expected.
This way instructor evaluate the way students develop tools to evaluate investment and financing decisions in entrepreneurial settings and recognize the life cycle of a startup venture, with emphasis on early stage financing.

4.4.9. Bibliografia de consulta/existência obrigatória:

There will be no required textbook. Course materials will be posted for download on the course web page. For those who would like to read more about some of the topics covered in this course, here are a few references:
• Andrew Metrick and Ayako Yasuda (2010). Venture Capital and the Finance of Innovation. Wiley.
• Noam Wasserman (2013). The Founder's Dilemmas: Anticipating and Avoiding the Pitfalls That Can Sink a Startup
• Constance Bagley and Craig Dauchy (2012). The Entrepreneur's Guide to Business Law, 4th Edition
• Smith, J., Smith, R. L., Smith, R., & Bliss, R. (2011). Entrepreneurial finance: strategy, valuation, and deal structure. Stanford University Press.
• Brad Feld and Jason Mendelson (2011). "Venture Deals: Be Smarter than your Lawyer and Venture Capitalist"

Mapa IV - Business Model Innovation/Inovação do Modelo de Negócio

4.4.1.1. Designação da unidade curricular:
Business Model Innovation/Inovação do Modelo de Negócio

4.4.1.1. Title of curricular unit:
Business Model Innovation

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOÃO NUNO LOPES DE CASTRO/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
Decompose the actions of an organization as a business model
Compare, contrast and critique with other organizations in an industry
Define purpose and design alternative business models
B. Subject-Specific Skills

Frameworks used to analyze business models
Case study
C. General Skills
Business and industry assessment

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Week 1 – The setting: What is innovation, what is a business model
Week 2 – The old world: How to look at history through Business models
Week 3 – The broad world: Business models in different industries
Week 4 – The purpose: Winning and strategy
Week 5 – The deep dive: guest lecturer(s) explain their industry
Week 6 – The revolution: teams present the(ir) future

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The aim of this course is to enable students to better understand, decompose and analyze business or operational models in organizations. Students will work individually and in groups, studying, debating and evolving business models from a wide variety of industries and strategies. At the end of the course, students should be able to look at any organization and try to explain the connectedness of its actions through a business model and theorize novel approaches it could take or compare with what competition is doing. Students should be able to identify the business model as an identifying trait of an organization.

Business models are an applied topic in business, by definition. The program for this course mimics that nature as closely as possible and offers a very practical, hands-on framework for defining, designing, analyzing, arguing and evolving business models.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
This class requires an investment towards effective class participation. Cases will be presented, either in class by the instructor, by student teams or through literature. Most of the takeaways will come from the quality of the discussion happening in class.
ASSESSMENT.
There is no exam for this class and it is replaced by an Individual Essay (50% of final grade).
Other elements of assessment are:
- Class participation (individual): 20%
- Business presentation (team): 10%
- Revolution model (team): 20%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
At the end of the course, students should be able to look at any organization and try to explain the connectedness of its actions through a business model and theorize novel approaches it could take or compare with what competition is doing. Students should be able to identify the business model as an identifying trait of an organization.
Written and Oral presentations aim at promoting these skills. Analytical capacities are pursued by the requirement Business presentation and Revolution model. Critical capacity is developed in classes and in the Individual Essay

4.4.9. Bibliografia de consulta/existência obrigatória:
There is no specific bibliography. However, depending on the topic, students are expected to use business and innovation information in working papers or research papers, newspapers, international institutions reports.

Mapa IV - Corporate Social Responsibility/Responsabilidade Social Corporativa

4.4.1.1. Designação da unidade curricular:
Corporate Social Responsibility/Responsabilidade Social Corporativa

4.4.1.1. Title of curricular unit:
Corporate Social Responsibility

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
MILTON JORGE CORREIA DE SOUSA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
- *Understand the evolution of the role of business in society and the integration of CSR into corporate strategy*
- *Build a business case for CSR from a sustainable value perspective*
- *Outline key leadership behaviors and organizational processes necessary to manage from a socially responsible perspective*

B. Subject-Specific Skills
- *Establish a dialogue with internal and external stakeholders*
- *Analyze corporate strategy from a CSR and stakeholder perspective*
- *Present a compelling case for CSR as na integral part of corporate strategy*
- *Apply ethical judgement towards complex situations*

C. General Skills
- *Work in diverse teams and across cultures*

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
- *The role of business in society*
- *Stakeholder theory and management*
- *Sustainable and shared value*
- *Sustainable business models*
- *The dilemmas and paradoxes of social responsibility*

- *Ethical and responsible leadership and the integration of CSR in the organization*
- *Social Innovation and Entrepreneurship*

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course aims to discuss the main tenets of corporate social responsibility as a central aspect of corporate strategy, while addressing the importance and challenges of ethical leadership in this context.

Emphasis is put on developing ethical and strategic judgement rather than memorization. Learning method emphasizes therefore personal ownership, reflection and self-learning, supported by class discussion and facilitation.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The class will be run in a "flipped class room" and Problem Based Learning approach. Material and videos will be provided in advance, from which students will develop and prepare their preferred areas of study for further discussion and elaboration in class. In addition, the course will include various cases, exercises and a simulation.
ASSESSMENT
• Final exam (50%): based on a current news article (provided 3 days before the exam), you should answer two CSR related questions.
• In class group poster presentation (50%): As a group you should discuss your findings from each class and prepare a summary with your key learnings, takeaways and suggestions to further grow the adoption of CSR by corporations. The poster will be presented in the last class.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The ex-cathedra sessions present the main concepts to the students. The discussion sessions stimulate the ability to apply the concepts presented.
The class group poster presentation promotes the ability to do analysis of the corporate social responsibility issues. The comments promote the skills in communicating to a non-specialist audience the main insights of the analysis.

4.4.9. Bibliografia de consulta/existência obrigatória:
Haski-Leventhal, D. (2018). Strategic Corporate Social Responsibility: Tools and Theories for Responsible Management. SAGE

The online resources of the Financial Times will be used (Nova SBE has a special account to access content)

Mapa IV - Entrepreneurship/Empreendedorismo

4.4.1.1. Designação da unidade curricular:
Entrepreneurship/Empreendedorismo

4.4.1.1. Title of curricular unit:
Entrepreneurship

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
NADIM FOUAD BOU-HABIB/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding:
• Understand the challenges involved in building a business from start-up to maturity
B. Subject-Specific Skills:
• Be able to develop a solid business plan to support business ideas and innovation
C. General Skills:
• Communication – pitching complex ideas
• Work in a group

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
The program starts by covering initial business idea generation before moving on to the challenges of building a successful entrepreneurial organization, touching on funding, leadership and long-term planning:
1. Early stage innovation – From idea to business model
2. The Business Plan – Structure and benefits
3. Funding the business
4. Sales, marketing and connecting with customers
4. Leadership and talent in entrepreneurial ventures – the founders changing role
5. Growing the business - Balancing entrepreneurial processes with operational efficiency

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course aims to cover the principles of entrepreneurship, allowing for a deeper understanding of the key success factors behind entrepreneurial ventures. Whilst mainly dealing with business start-ups and their development, the course also aims to provide students with a vision of how entrepreneurial processes can benefit innovation in existing business.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course will be delivered in six sessions, balanced between lectures, case study discussions and group work. Students will be expected to work (in groups) on a business idea, delivering a final business pitch in the last session.

Assessment
1. Group assignment- Business Plan (50%)
Students should form groups of 4/5 and will work on a business idea throughout the program, delivering a final business plan in the last session, and presenting it in class. Final group assignment grade will be calculated according the following formula:
** 40% on the Business Plan.*
** 40% on the Pitch Presentation.*
** 20% on Peer Evaluation*
2. Final individual exam (40%)
The final exam is mandatory. Students are not allowed to consult reading materials. The final exam is a case study.
3. Individual Participation (10%)
It will take into account your attendance and also your contribution to class discussion - both quantitatively and qualitatively

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The teaching methodologies adopted are intended to stimulate the students' ability to go from theory to practice through the apprehension of concepts, tools and methodologies which are explained in the classroom. Thus, they contribute to the process of individual and group learning.
The evaluation focuses on the students' proactive and creative abilities by empowering them as change agents responsible for designing solutions to important and neglected problems of society.
It is also intended that students are able to fundament their own point of views and their communication skills.

4.4.9. Bibliografia de consulta/existência obrigatória:
John Bessant, Joe Tidd (2011) "Innovation and Entrepreneurship", 2 Edition , Wiley
Yves Pigneur, Alexander Osterwalder (2010) "Business Model Canvas Handbook for Visionaries, Game Changers, and Challengers", Wiley

RESOURCES
Class handouts. Exercises and cases. Additional readings will be provided during the course.
PowerPoint slides for the lectures.

Mapa IV - Customer Relationship Management/Gestão de Relacionamento com o Cliente

4.4.1.1. Designação da unidade curricular:
Customer Relationship Management/Gestão de Relacionamento com o Cliente

4.4.1.1. Title of curricular unit:
Customer Relationship Management

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
ELIZABETE MARGARIDA FIGUEIREDO CARDOSO/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
The main learning goals addressed by our CRM course are the following:
• Improves written and oral communication skills
• Improves analytical thinking
• Makes use of IT tools available for managers
• Encourages interpersonal relations and teamwork
• Allows for diverse and multicultural work environment
• Provides learning experience in integrating knowledge across fields
• Teaches about financial theories, analysis, reporting and markets
• Teaches about information technology and quantitative methods that relate to data creation, sharing, analysis, modelling and reporting for business purposes
• Provides learning experiences in understanding each specific business or management discipline from different perspectives

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
CRM origins and evolution;
Diagnosing CRM level in a company and the IDIC model
Briefing on client; Identifying and differentiating customers
Segmentation: techniques, models and cases
Interacting with the customer and the role of social media
Benchmarking CRM practices across industries
Privacy, permission marketing and mass customization
Measuring sucess and campaign analysis
Segmentation analysis with Excel - workshop
Segmentation proposal
Customer analytics - deriving value
Organizing, managing and setting the future of the profitable customer-strategy enterprise
Company CRM Plan Evaluation + LTV approach proposal

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The course is a tool for future data management scientists, as it intends to provide an insider's overview of how to analytically and strategically recognize, collaborate and deploy Customer Relationship Management in a company to maximize the value of and for each customer.
You will learn different ways to learn about customers (identifying), how to segment them (differentiating), how to approach and communicate with them (interacting) and what the best value propositions are for them (customizing).
You'll also learn to evaluate the success of a CRM strategy – key to support decision-making in Marketing.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course intends to complete a theoretical framework with hands-on experience, and so there will be 2 different types of class:

• Theoretical Classes – typical, whole class sessions, in which the foundations of CRM as examined.
• Team Sessions – single group classes in which students present the progress of their work (deliverables are predetermined in course planning) and receive feedback on improvements and next steps. Each session allocates 15 minutes for group presentation + 15 minutes for instructor feedback. All group members must be present and, prior to each Team Session, the group must always upload their presentation – with numbered slides and in pdf format – onto the corresponding moodle assignment in the class webpage.
5. ASSESSMENT
• Group Project: 65%
• Final Report grade: 25%
• Peer Evaluation: 15%
• Team Sessions quality (3 across semester): 20%
• Individual evaluation: 5%
• Final Exam: 35% (Min. 8, 5 to pass)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The class is organized in teams of 5/6 students, each carrying out their own CRM project, under the management problem briefed by the client in the beginning of the term. The project will evolve with the progression of the theoretical classes and aims at giving students a hands-on experience.
A company will be the topic for this semester's Customer Relationship Management project, and a dataset will be provided for students to exercise segmentation modelling for the purpose of the course project.

4.4.9. Bibliografia de consulta/existência obrigatória:
Recommended book:
• PEPPERS, Don & ROGERS, Martha: Managing Customer Relationships: A Strategic Framework, 2nd Edition (Wiley)
Interesting additions to your library:
• GUPTA, Sunil: Managing Customers as Investments, 2005, Pearson
• BUTTLE, Francis: Customer Relationship Management – Concepts and Technologies, 2008, Elsevier
• ROGERS, David: The Network is Your Customer (Yale University Press)

Mapa IV - Global Supply Chain Management/Gestão da Cadeia de Abastecimento

4.4.1.1. Designação da unidade curricular:
Global Supply Chain Management/Gestão da Cadeia de Abastecimento

4.4.1.1. Title of curricular unit:
Global Supply Chain Management

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOSÉ LUÍS MEXIA FRAÚSTO CRESPO DE CARVALHO/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Understanding the Dynamics of Companies where integrated in SCs and Global SCs
• Understanding the central concepts and practices in SC Management
• Understanding the liaison between SC concepts and Competitive and Corporate Strategy
• Perceiving the major digital trends and their impacts in Supply Chains
• Applying knowledge and ideas to Case Studies
B. Subject-Specific Skills
• Knowing the main language and concepts used in Logistics and SCM
• Knowing the main practices and ideas associated with Logistics and SCM and linking those practices and ideas to Strategy
• Analysing company cases studies in order to gather central information and to develop, debate and criticize future steps.
C. General Skills
• Communicate and express ideas and thoughts
• Build knowledge and critical thinking skills
• Analyse and propose solutions to problems
• Being aware of the major trends in the digital transformation that have or might have impacts in supply chains

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
• Logistics and Supply Chain Management
• Global Supply Chain Management
• Logistics, Global Supply Chain and Strategy
• Value Chain and Supply Chain
• Supplier Qualification
• Transports, Warehousing, 3PLs and Inventories
• The Network Logic and Trends (Digital Trends and Impacts)
• GSC and Customer Value
• Bullwhip Effect; Integration and Risk Management in GSCs
• Case Studies

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The course explores the main thoughts and practices in Logistics and Supply Chain Management and establishes and explores the link between Global Operations and Company Corporate and Competitive Strategies. The course has a very practical approach, especially through company case studies, developed in group or individually in the case of the take home final exam. The course has, also, no pre-requisites in terms of operations management background and all students from different areas are accepted. It is not an advanced course and it is independent in terms of its nature and tries to develop an AS IS – TO BE approach based on a consultancy reasoning.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):

Expositive in terms of concepts. Discussion with students in case studies and problems.
Presentations of analyses and solutions by students.
ASSESSMENT
Exam – 50% (2 days take home exam in the first 2 days available between the end of the course and the beginning of the exams period)
Group Work, presentations, and participation – 50%
Group Work - delivery dates to be defined in the first day of the course.
Exam: two days to develop a case study; dates to be presented in the first day of the course.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Teaching methods and grading combine several inputs, from individual class participation and case d iscussion in class to a group assignment in actual companies (teacher provided access to six relevant companies where students analyzed Supply Chain issues and developed corresponding recommendations).
This approach supported the "general management view of the subject", which is one of the main outcomes aimed at by the curricular unit. Also, students were involved in a simulation named Beer Game, where they took part in competing supply chains with four stages each and where they were able to apply and experience some important concepts, namely the so-called bullwhip effect.

4.4.9. Bibliografia de consulta/existência obrigatória:
• Christopher, Martin – Logistics and Supply Chain Management, Financial Times Series, Person, 2016, 5th Edition
• Kotzab, H., Skjott-Larsen, T., Shary, P., Mikola, J. – Managing the Global Supply Chain, Copenhagen Business School Press, 3rd Edition, 2007.
• Class handouts and case studies.

Mapa IV - Operations Management/Gestão de Operações

4.4.1.1. Designação da unidade curricular:
Operations Management/Gestão de Operações

4.4.1.1. Title of curricular unit:
Operations Management

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
MANUEL PEDRO DA CRUZ BAGANHA/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
The relevance of process design and its main elements
The main tradeoffs in process management
The key elements of operational excelence
B. Subject-Specific Skills
Design and analysis of processes
Improving processes
C. General Skills

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Week 1/2
PROCESS FLOW ANALYSIS
Basic concepts. Little's law. The impact of losses. Capacity utilization
Week 2/3
Variability and its impact on process performance.
Waiting line models
Impact on capacity
Week 4
Impact of batching on process performance.
Economic Order Quantity, Production Order Quantity. The case of multiproducts
Week 5
Quality management
and six sigma capability
Week 6
Lean Operations and Toyota Production System.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The effective management operations requires specialized analytical tools and a global perspective. This course covers a mix of topics with an emphasis on strategic frameworks
and some quantitative methods. In class simple models and basic concepts will be introduced in order to analyze tradeoffs in designing and managing processes.
Students will apply the ideas and analytical tools to a diversity of industries and situations. In particular, the above problems will be addressed.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
There are two classes per week. The first class of every week will focus more on the presentation of tools and frameworks. The second class will focus more on the application the concepts and analyses to different types of organizations and the decisions they face.
A learning process improves when one looks back and evaluates the topics discussed in class. With that objective, every week each student will have to hand in (through moodle) answers to selected problems. These problems may be quantitative or qualitative.
ASSESSMENT. The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

There are two classes per week. Each class is of 1h20 m. Lectures will be the predominant form of presentation and will be complemented by discussion of case studies, in-class exercises and/or projects discussion. Keynote speaker(s) can be invited to classes.
The learning in the classroom is based on interaction among class members (including the instructor). Preparation for each case and project analysis and active participation in class discussion is critical when we are to learn from each other (individuals and/or teams, depending on the number of students) to facilitate learning, particularly for the case analysis and projects and case studies discussion.
All team members are expected to evaluate and to listen to the evaluation of their team mates and give feedback and suggestions to team mates on their work, as well (this will have impact on evaluation). No free riders are accepted to obtain approval on the course.

The evaluation of the students will be based on class participation, weekly problems, group case reports and final exam. Class participation will be evaluated considering the quality of the comments and contribution to the development of the class.
There will be 2 case reports prepared by groups of 4 students.
There will be 3 at home individual quizzes

4.4.9. Bibliografia de consulta/existência obrigatória:

Cachon, Gerard and Terwiesch, Christian, Matching Supply and Demand, 3rd edition, McGrawHill, 2013
Ravi Anupindi et al, Managing Business Process Flows, 3rd edition, Pearson 2011

Articles available through moodle
Notes developed by the instructor
Slides of the classes

Mapa IV - International Corporate Strategy/Estratégia Empresarial Internacional

4.4.1.1. Designação da unidade curricular:

International Corporate Strategy/Estratégia Empresarial Internacional

4.4.1.1. Title of curricular unit:

International Corporate Strategy

4.4.1.2. Sigla da área científica em que se insere:

G

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:

23

4.4.1.6. ECTS:

3,5

4.4.1.7. Observações:

Opção livre

4.4.1.7. Observations:

Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):

YOUTHA KELLY CUYPERS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
1. To provide a detailed understanding of the essential frameworks and concepts of strategic management in a global context.
2. To provide an understanding of how firms can achieve and sustain a competitive advantage in a global context, through corporate strategy.
3. To develop the ability to analyze and understand a firm's strategic decisions and performance.
4. To prepare students for a career in the international business field and develop a global and strategic mindset.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
The course will use key strategic management theories and frameworks and apply them in a global context, highlighting the following broad topics:
I. Corporate Strategy: What determines the boundaries of the firm?
- Product diversification
- Vertical integration
- Geographic diversification
- How to expand the firm's resource base: Build, Buy, Borrow
- Market entry modes
II. Competitive strategy
- Competing in a global market
- Multimarket contact
- The link between corporate and competitive strategy
III. International strategy
- Standardization vs adaptation
- Competing in Emerging Markets and with Emerging Market Multinationals
IV. Other topics:
- Strategy and sustainability
- Strategy for startups.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Doing business in today's environment increasingly entails conducting and coordinating activities across national borders. The International Corporate Strategy course is designed to provide students with the skills and knowledge required to aid firms in creating, maintaining and renewing a sustainable competitive advantage within a global environment, particularly through the development of a suitable corporate strategy. Corporate strategy focuses on how companies create value across different businesses, through sharing of resources or transferring of skills leading to synergies. More precisely, it is concerned with how companies determine which businesses to be in (product diversification), which markets to enter (geographic diversification), whether to outsource some activities along the value chain or do everything inhouse (vertical integration), and how to obtain the necessary resources that can be used in its portfolio of businesses.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course uses a combination of short interactive lectures, case discussions, interactive exercises and/or simulations, short student presentations, guest lectures and discussions. The theoretical tools and frameworks used in the course will be introduced during short lectures. Subsequently, students will apply them to the assigned case studies which will be discussed in detail in class. We will use a range of cases throughout the course that will provide insights into a diverse range of

countries, industries and companies. In addition, student teams will be assigned topics for presentation and discussion.
ASSESSMENT
Short in-class group presentation (10%)
Company group term project (40%)
Final exam (50%)
Final grade = 10% in-class presentation + 40% group term project + 50% final exam

Class attendance is highly encouraged and necessary, both for preparation for the exam and the term project and to ensure in-class exercises such as simulations run smoothly.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Group assignment consist of a set of short exercises, problems, and responses to questions related to topics discussed during the classes. Individual assignment will help students understand the core concepts provided in the course, and develop critical analysis.
Group assignment contributes to develop students' general skills, namely communication; ability to learn and work in groups, the use of information technology, access and consultation of databases and develops critical analysis.

4.4.9. Bibliografia de consulta/existência obrigatória:
There is no specific bibliography. However, depending on the topic, students are expected to use corporate strategy and international corporate strategy information in working papers or research papers, newspapers, international institutions reports.

Mapa IV - Negotiation/Negociação

4.4.1.1. Designação da unidade curricular:
Negotiation/Negociação

4.4.1.1. Title of curricular unit:
Negotiation

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
LUÍS MIGUEL TAVARES DE ALMEIDA COSTA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:

N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):

N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):

On completion of this course participants should be able to:
A. Knowledge and Understanding:
Identify and understand different types of negotiating situations;
Know how to prepare a negotiation;
Know how to deal with different types of negotiating situations.
B. Skills – The course has several objectives:
Develop the participants' negotiation skills;
Develop the participants' ability to work in teams;
Develop the participants' ability to apply the different concepts, models and frameworks to the analysis of real life situations.

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

Session 1 Course Overview
Session 2 Introduction to Competitive Bidding1
Session 3 Competitive Bidding - Simplified Maxco-Gambit Variations
Session 4 Competitive Bidding - Competitive Bidding with Asymmetric Information
Session 5 Distributive Bargaining (1) - Game to be Discussed: Lot # 21, Sect. Y, Episy
Session 6 Distributive Bargaining (2)
Session 7 Integrative Bargaining (1) - Game to be Discussed: CP France-MégaMarché
Session 7 Integrative Bargaining (2)
Session 9 Integrative Bargaining (3) - Reading "Six Habits of Merely Effective Negotiators", Harvard Business Review
Session 10 Bargaining under Uncertainty - Game to be Discussed: Woburton Steel - Cryogenic Technologies
Session 11 Inducing Cooperative Behavior - Game to be Discussed: Finitely Repeated Prisoner's Dilemma
Session 12 Asymmetric Information - Game to be Discussed: Walkenhorst Chemical vs. Lakeland Industries

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

This course offers a strategic and integrated perspective about how to prepare and how to deal with different types of negotiating situations. The first part of the course focuses on competitive bidding. The remainder of the course deals with bargaining proper. Building from simple to complex negotiations, the course develops an analytical framework that helps participants to understand their negotiating situation, the tactics that are available given the situation, and the array of moves that can be employed to improve their prospects by changing the situation.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The course develops the negotiation skills of participants through a carefully controlled combination of lectures, class discussions, negotiation exercises, individual exercises and a negotiation Write-Up.
Lectures/Class Discussions have one main objective:provide an integrated perspective of the main concepts and tools in Negotiation Analysis.
Negotiation and Individual Exercises - there are two types of exercises: games with statistical interactions and with personal interactions.
Negotiation Write-Up - the object of the Write-Up is the analysis of a real-life negotiating situation using the concepts, models and frameworks discussed in the course.
ASSESSMENT
Negotiation exercises
- Negotiated outcomes: 20%
- Negotiating process: 20%
- Negotiation Write-Up: 10%
Final exam (closed book): 50%

Independently of the grades obtained in the negotiation exercises and in the Write-Up, in order to pass this course participants must have a grade of at least 9 out of 20 in the final exam.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The course develops the negotiation skills of participants through a carefully controlled combination of lectures, class discussions, negotiation exercises, individual exercises and a negotiation Write-Up.

Lectures / Class Discussions have four main objectives:
Provide an integrated perspective of the main concepts and tools in Negotiation Analysis;
Give a comprehensive view of the different topics discussed;
Explain the relevant concepts, models and frameworks;
Introduce the practical tools participants need to analyze the negotiation exercises and to apply the conceptual models to real life situations;
Constitute the basis for discussing how to deal with specific real life negotiating situations;
Provide a forum for knowledge and experience sharing among participants.

Negotiation and Individual Exercises
There are two types of exercises: games with statistical interactions and with personal interactions.
In games with statistical interactions, such as the bidding exercises, participants are asked to record their strategy, which will then be pitted against the strategy of all other students in the course. In games with personal interactions, participants are told which role they are to play in a given situation and are given the name(s) of the other player(s) with whom they will negotiate; participants will then have to interact face-to-face (or, for example, by phone or email). For each exercise, the relative performance of participants is recorded.
The exercises used in the course are mentioned in the detailed Program. The exercises have three main objectives:
Allow participants to understand how to deal with different types of negotiating and competitive bidding situations;
Give participants the opportunity to gain a better understanding of how the different concepts and tools fit together;
Give participants the opportunity to apply the different concepts, models and frameworks to real situations.

Negotiation Write-Up
The object of the Write-Up is the analysis of a real-life negotiating situation using the concepts, models and frameworks discussed in the course. The Write-Up should have 5-7 pages. Each participant chooses his or her own topic, but has to validate it with the instructor. The Write-Up has several objectives:
Give participants the opportunity to deepen their knowledge of a given topic;
Give participants the opportunity to apply the conceptual tools to a real life situation;
Constitute an additional opportunity for participants to reflect on their own experience and to analyze how to deal with a specific negotiating situation.

4.4.9. Bibliografia de consulta/existência obrigatória:
- R. Fisher and W. Ury, Getting to Yes, Penguin Books, Harmondsworth, Middlesex, 2012.
The following book is recommended:
- H. Raiffa (with J. Richardson and D. Metcalfe), Negotiation Analysis – The Science and Art of Collaborative Decision Making, The Belknap Press of the Harvard University Press, Cambridge MA, 2007.
Cases and additional readings are available online or distributed in class. Confidential instructions for different players required in some of the negotiation exercises will be distributed throughout the course.

Mapa IV - Derivatives/Derivados

4.4.1.1. Designação da unidade curricular:
Derivatives/Derivados

4.4.1.1. Title of curricular unit:
Derivatives

4.4.1.2. Sigla da área científica em que se insere:
F

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOÃO MANUEL GONÇALVES AMARO DE MATOS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Know what the different types of derivatives are
• Understand the underlying principles of no-arbitrage
• Know how to price basic derivatives
• Understand the application of different derivatives for hedging purposes
• Understand the application of derivatives in Corporate Finance

B. Subject-Specific Skills
• Apply no-arbitrage valuation to derivatives
• Know how to identify and implement hedging strategies

C. General Skills
• Understand the role and the potential of derivatives
• Relate the properties of these markets to the foundations of Economic Theory

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1st class: State Prices and Derivatives Valuation: Recovering the Binomial Model;
2nd class: Valuing Options with Stochastic Volatility and Term Structure of Interest Rates;
3rd class: Valuing Options in N periods and the Continuous-Time Limit;
4th class: Valuing American Options and Options on Dividend-Paying Assets;
5th class: The Black-Scholes Model and its Properties;
6th class: Equity and Corporate Debt Representations as Options;
7th class: Real Options;
8th class: Dynamic Delta Hedging and the Greeks;
9th class: Principles of Simulation;
10th class: Exotic Options;
11th class: Discrete-Time Models for Options on Interest Rates;
12th class: Case study's presentations.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The objective of this course is to start from basic concepts of derivatives and develop an understanding of the role and practical use of options as a financial instrument, especially in the context of Corporate Finance. The course discusses hedging and pricing of options using both the discrete and continuous- time (Black and Scholes approach). We then relate these techniques to corporate finance applications such as the valuation of investment opportunities, as well as the design of corporate debt instruments.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The teaching method is based on lectures, 2 per week. Students are required to solve online a list of exercises every week regarding the topics discussed in class during that week. At the end there is an applied case study to be solved, where students should make use of the material of the course. A final and short comprehensive exam is made at the end.
ASSESSMENT
The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.
Weekly online exercises: (average grade E). Case Studies (grade C)
Final exam (grade F)
Final grade will be 0.5F+0.3C+0.2E

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

Participants have a chance to familiarize themselves with best practice models, practice with case studies, discuss different approaches and share their experiences during the classes.

Classes were planned in order to include both theoretical and practical sessions in order to address both the concepts as well as its application to real life examples. Grading class participation ensures that students play an active role and that these sessions are used to consolidate learning.
The individual assignments are focused in each main topic in order to ensure knowledge consolidation of the main topics address in the course.

4.4.9. Bibliografia de consulta/existência obrigatória:

John Hull, Options, Futures, and Other Derivatives, Prentice-Hall, Englewood Cliffs, New Jersey, U.S.A. 8th edition, 2012.
Jarrow and Chatterjea, Derivative Securities, Financial Markets and Risk Management, Norton, New York, 2013.
Class Notes.

Mapa IV - Risk Management/Gestão de Risco

4.4.1.1. Designação da unidade curricular:

Risk Management/Gestão de Risco

4.4.1.1. Title of curricular unit:

Risk Management

4.4.1.2. Sigla da área científica em que se insere:

F

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:

23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
GONÇALO MARÇAL DE SOMMER RIBEIRO/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
Become familiar with the range of risks facing corporations and learn how to measure and manage these risks. The discussion will be focused on several aspects of market risk and operational risk.

B. Subject-Specific Skills
Familiarize with salient features of asset returns by using time series analysis tools; apply state-of-the-art risk measurement and risk management techniques; use derivatives in risk management; volatility and correlation modeling.

C. General Skills
Critically appraise commercially available risk management systems and contribute to the construction of ad-hoc tailor-made systems of risk monitoring and management.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Week 1
Lecture 1: What is risk and why should we care
Lecture 2: Stylized facts of financial returns
Week 2
Lecture 3: Volatility Modeling
Lecture 4: Correlation Modeling
Week 3
Lecture 5: Modeling the Conditional Distribution of Assets Returns
Lecture 6: Value-at-Risk (Part 1, Stocks)
Week 4
Lecture 7: Value-at-Risk (Part 2, Bonds)
Lecture 8: Value-at-Risk (Part 3, Derivatives)
Week 5
Lecture 9: Conditional Value-at-Risk
Lecture 10: Simulation-Based Methods
Week 6
Lecture 11: Back-Testing and Stress Testing
Lecture 12: Operational risk management

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course is designed to provide students with a relatively sophisticated set of tools to measure and manage risks in financial markets, with a particular focus on market risk. The course is structured to help students to understand key features of asset returns and build tractable statistical models which allows to capture those features.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Lecture-style instruction; the lectures are expected to be highly interactive and the active participation of the students is highly recommended. Slides, notes, data and computer codes will be provided by the lecturer.

ASSESSMENT.
The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.
Group work: weight 30% (it will be a small research project for a group of 5/6 students) Final exam: weight 70% (part of the exam will be multiple-choice and part open questions)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The teaching methodologies include the presentation of concepts, solving problem sets and case analysis.
These methods assure that students learn the concepts and know how to apply them in practice

4.4.9. Bibliografia de consulta/existência obrigatória:
Core books: "Elements of Financial Risk Management (2nd Edition)", Peter F. Christoffersen (2011), "Value-at-Risk: The New Benchmark for Managing Financial Risk (3rd edition)", Philippe Jorion, (2007)
Further readings: "Quantitative Risk Management: Concepts, Techniques and Tools", Alexander J. McNeil, Paul Embrechts, and Rudiger Frey, (2005).
"Financial Risk Management: A Practitioner's Guide to Managing Market and Credit Risk (2nd Edition)", by Steve L. Allen, (2013).

RESOURCES.
Slides, notes, data and computer codes will be provided before the lectures

Mapa IV - Game Theory/Teoria dos Jogos

4.4.1.1. Designação da unidade curricular:
Game Theory/Teoria dos Jogos

4.4.1.1. Title of curricular unit:
Game Theory

4.4.1.2. Sigla da área científica em que se insere:
E

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
ALEXANDER FRASER COUTTS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
- Understand the main concepts of game theory under incomplete information (type representation, information and dynamics, equilibrium concepts and their applications).
- Understand the underlying theoretical tools from mathematics and probability.
- Understand how to identify games in economic and social situations.

B. Subject-Specific Skills
- Classify and formalize strategic situations with respect to interdependence, available strategies, time and information structure.
- Formalize information asymmetries and transmission.
- Formalize strategic situations as games, and find equilibria.
- Integrate ideas from game theory into various branches of economics and the social sciences.

C. General Skills
- Distinguish single-person decision problems from interdependent decision problems (games).

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Strategic form games and Nash equilibrium, extensive form games and subgame-perfect Nash equilibrium;
Bayesian games and Bayes-Nash equilibrium;
Dynamic games, Bayesian-perfect equilibrium and sequential equilibrium;
Screening, signalling, mechanism design and auctions;
Behavioral game theory.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course presents, at a medium level, the concepts and tools for the analysis of situations where decision problems of various actors are interdependent, and some actors possess more information than others. Typical issues involve the analysis of actors' beliefs over time and the strategic use of information. The focus of the course is on a simple but rigorous treatment of the theoretical foundations and equilibrium concepts. Many applications are discussed.

This course consists of 12 sessions where theory and examples are discussed. Relevant topics:
1. Strategic form games with incomplete information (Bayes-Nash equilibrium).
2. Screening, Signaling, Mechanism Design and Auctions.
3. Dynamic games with incomplete information, (Perfect-Bayesian equilibrium).
4. Behavioral game theory.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
This course consists of 12 sessions where theory and examples are discussed.
In a half-semester course the students will be offered lectures which contain both exposition of the theory and immediate applications. Students will prepare classes with assigned readings, do two take home problem sets, and answer weekly

online quizzes. Students will be able to discuss course content in Moodle forums.

ASSESSMENT.
The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.
Final exam: 50%
2 problem sets: 30%
Online quizzes: 20%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
In the lectures, the instructor presents the students the basic tools of the game theoretical approach to the analysis of conflict and strategic interaction in contexts of complete information.
In order to ensure that the students understand the tools and are able to apply them to actual examples in economics, management and politics, they must work autonomously on take home problem sets and online quizzes.

4.4.9. Bibliografia de consulta/existência obrigatória:
Martin J. Osborne (2003), An Introduction to Game Theory, Oxford University Press.

RESOURCES.
Slides and other material will be distributed through Moodle.

Mapa IV - Luxury and Fashion Marketing/Marketing de Moda e Luxo

4.4.1.1. Designação da unidade curricular:
Luxury and Fashion Marketing/Marketing de Moda e Luxo

4.4.1.1. Title of curricular unit:
Luxury and Fashion Marketing

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
CATHERINE THÉRÈSE LAURENCE JOUVEN DA SILVEIRA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:

N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):

N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):

A. Knowledge and Understanding
• Understand the specificities of the luxury business model: The notable sector's growth
• Challenge the established way of doing business through the study of a different but effective approach to market.
B. Subject-Specific Skills
Luxury marketing:
• Main definitions and approaches to the concept of luxury
• Luxury and premium consumers understanding and segmentation
• Luxury brands and products management
• Luxury distribution and retailing
Fashion Marketing:
• Approaches to the concept of fashion
• Trends: How do trends develop? Understanding the consumer empowerment paradigm
• The fast fashion business model : Value Proposition, operational pillars and merchandising
C. General Skills
• Be able to apply the knowledge acquired in Class in a "real" luxury or premium business and/or brand.
• Ability to combine theory and practice, ethical reasoning, capacity to think "out of the box", presentation skills and group dynamics "management".

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

1st block: Luxury paradigm

Luxury Concept and business models
Main definitions and approaches to the concept of luxury
Boundaries between premium, middle market fashion, art, religion and luxury
Specificities of the luxury business model

Understanding the luxury and premium consumer worldwide
Who are today's luxury consumers and clients?
How do luxury consumers from emerging countries differ from consumers from developed markets?

Developing and managing luxury brands and products
Building brand coherence: brand architecture and product roles
How far a luxury brand can stretch?

Distribution and retailing
Where, when, and how to sell luxury brands, products and services?
Choosing a distribution model

2nd block: Fashion Marketing

Approaches to the concept of fashion
Social Change Clothing industry

Trends
How do trends develop?
A new paradigm: consumer empowerment

The fast fashion business model
The Zara Case
Value Proposition and operational pillars Merchandising

New moves

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The Course combines Lectures and Discussions in Class with a Practical Team Project. Overview of the Team Project:
Over the semester, students develop a practical team project, which main purpose is to implement or re-implement in the local (Portuguese) market a luxury or high premium brand/service/concept already established in a foreign market.
Projects address the marketing, branding, and retailing strategy of the selected topic.
At the end of the semester, insights and recommendations are presented to and discussed with a panel of Experts who work in the luxury (goods or services) and fashion industry and have gone themselves through the same type of process - launching international brands in the local market

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The Course combines several active learning methods:
• Lectures to provide the essential knowledge on luxury and fashion marketing strategy, branding, and retailing.
• Team project. Students are asked to develop a succinct project and present it to a panel of experts in luxury goods and/or services.
• Team project Sessions
• Individual reflection on Case Studies involving recent business case studies from the Luxury, Premium and Fashion World
ASSESSMENT
Team Project: 45%
• Final Presentation and discussion: 20% [Team evaluation]
• Individual Contribution: 15% [Peer evaluation + evaluation other teams]
• Preparation Team Sessions: 10% [assessment of the Team Sessions]
Individual written assignments: 25%
Final Exam [Mandatory]: 30% [Minimal grade of 8,5 is required]

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

The Course combines several active learning methods:
• Lectures to provide the essential knowledge on luxury and fashion marketing strategy, branding, and retailing.

• Team project. Students (in teams of approximately 5 students) are asked to develop a succinct project and present it to a panel of experts in luxury goods and/or services. The team project essentially consists in 1) Selecting a luxury or high premium brand/service/concept established in a foreign market but currently NOT or POORLY distributed in Portugal; 2) Propose a marketing/branding/retailing strategy to successfully implement or re-implement this brand/service/concept in the local (Portuguese) market.
The choice of the brand/service/concept is free but should be validated with the course instructor.

Team Project Sessions: Two slots of 45 minutes are attributed to each Team over the Semester for project discussion with Instructor and Teaching Assistant, besides the final presentation to Luxury experts. Teams are required to prepare a predetermined part of their teamwork for each Team Project Session. During the Team Project Session weeks, lectures are not offered.

• Individual reflection on Case Studies involving recent business case studies from the Luxury, Premium and Fashion World (two Case Studies over the Semester - One in Luxury Marketing and one in Fashion Marketing – to be completed individually as an in-home assignment.)

4.4.9. Bibliografia de consulta/existência obrigatória:

KAPFERER, Jean-Noël & BASTIEN, Vincent. The luxury strategy – Break the rules of Marketing to build luxury brands, Second Edition, 2012, Kogan Page.
Additional bibliography:
UNDERHILL, Paco. Why we buy – The Science of Shopping, Updated Version, 2009, Simon & Schuster.
CORBELLINI, Erica & SAVIOLO, Stefania. Managing Fashion and Luxury Companies, 2009, Rizzoli Etas.
KAPFERER, Jean Noël, Kapferer on Luxury – How Luxury Brands can grow yet remain rare, 2015, Kogan Page.
WITTIG, Martin, SOMMERROCK, Fabian; BEIL, Philip & ALBERS, Markus. Rethinking Luxury – Roland Berger, 2014. Lid Publishing
+ LIPOVETSKY, Gilles & ROUX, Elyette,
RESOURCES.
Course power point slides and additional material [readings, cases, articles…] will be available on Moodle.
The Business of Fashion: BoF - www.businessoffashion.com
[Fashion News, Analysis and Business Intelligence from a leading digital authority on the global fashion industry].

Mapa IV - Persuasion and Negotiation/Persuasão e Negociação

4.4.1.1. Designação da unidade curricular:
Persuasion and Negotiation/Persuasão e Negociação

4.4.1.1. Title of curricular unit:
Persuasion and Negotiation

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
PEDRO MIGUEL MIRANDA NEVES/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Understanding man as a bounded rational being;
• Understanding the main rules and biases governing "real" human behavior in bargaining contexts;
• Acknowledge the limits of man as a greedy and ever self-interested being.
B. Subject-Specific Skills
• Knowledge of the main negotiation strategies, constructs and tools;
• Learn about the distributive and integrative negotiation strategies;
• Understanding negotiation games and game theory assumptions;
• Knowledge of the main emotional factors that biased actors in the bargaining stage and in investment negotiations;
• Understanding the role played by power, ethics and relationships in negotiations;
• Understanding of cross-cultural differences in negotiation issues;
• Critical thinking on the negotiation and investment processes.
• Self-assessment tools;
• Critical thinking on the negotiation process
C. General Skills
• Critical thinking;
• Communication skills
• Strategic skills
• Relational skills

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

Week 1 Presentation and Introduction to persuasion and negotiation (Assignment)
Week 2 Conflicts and conflict management (Assignment)
Week 3 Strategy in negotiation
Week 4 Heuristics and framing (Assignment)
Week 5 Most common biases (Assignment)
Week 6 Communication
Week 7 Relational aspects of negotiation (trust, fairness and reputation)
Week 8 Power and ethics in negotiation
Week 9 Multiple party negotiation
Week 10 Cross cultural negotiation
Week 11 How to improve decision making?
Week 12 Group presentations

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

The syllabus covers a number of topics related to negotiation, particularly the psychological and behavioral side of negotiation. Our course discusses some of the fundamentals of negotiation such as its nature (session 1), the role of conflicts and their management (session 2), and strategy and tactics of integrative negotiation (session 3). The course also discusses the psychological subprocesses of negotiation, including the findings stemming from behavioral economics, namely the most common heuristics and biases (sessions 4 and 5), communication (session 6) and power (session 8); and the relational and social context surrounding negotiations (sessions 7 and 9). The course also analyzes the cross-cultural dimension of negotiation (session 10) and provides insights of best practices (session 12).

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

• Lecture sessions;
• Negotiation exercises;
• Simulations;
• Discussion of assigned readings;
• Expert talks
ASSESSMENT.
1. Exam: 30%
There will be a written exam, with open-ended questions focusing on the topics discussed in classes.
2. Individual Reports: 30%
Students are required to deliver several written individual reports on selected cases, exercises and readings through the course. The materials will be provided by the instructors and groups will answer a specific set of questions for each report.
3. Group Report: 30%
Students are required to deliver a group written report containing a case-study illustrative of the course contents. The case study should not only describe an in-depth investigation of a relevant negotiation problem, but also provide a teaching note for future reference.
4. Class participation: 10%
It is expected that students actively participate in ALL classes, including the discussions, cases, and simulations.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

The course aims to analyze and discuss (Discussion of assigned readings/Expert talks)the basic fundamentals of negotiation as well as the underlying psychological subprocesses and the social context surrounding negotiations. Given the current context, characterized by globalization and workforce diversity, the course also discusses negotiation in cross-cultural contexts (Negotiation exercises/Simulations) and provides practical tips to help students improve their negotiation ability (Lecture sessions) .

4.4.9. Bibliografia de consulta/existência obrigatória:

Textbook
Lewicki, R.J., Barry, B., &. Saunders, D.M. (2016). Essentials of negotiation (6th Ed.). New York: McGraw-Hill.

Additional readings:
Bazerman, M.H. (2008). Judgment in Managerial Decision Making (7th edition). New York: Wiley.
Bazerman, M.H., Curham, J.R., Moore, D.A., & Valley, K.L. (2000). Negotiation. Annual Review of Psychology, 51, 279-314.
Fisher, R., Ury, W., & Patton, B. (2011). Getting to yes: Negotiating agreement without giving in. New York: Penguin Books.
Schwartz, H. (2008). A Guide to Behavioral Economics. Falls Church, VA: Higher Education Publishers. Thompson, L.L., Wang, J., & Gunia, B.C. (2010). Negotiation. Annual Review of Psychology, 61, 491-515.

NOTE: Additional readings will be proposed and provided throughout the course for class discussion.

Mapa IV - Integrated Marketing Communications/Comunicações Integradas de Marketing

4.4.1.1. Designação da unidade curricular:
Integrated Marketing Communications/Comunicações Integradas de Marketing

4.4.1.1. Title of curricular unit:
Integrated Marketing Communications

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JORGE MANUEL NAVES VELOSA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
Provides learning experiences in understanding Integrated Marketing Communications and marketing from different perspectives.
Provide learning experiences in framing problems and developing creative solutions in marketing communications.
B. Subject-Specific Skills
Learn how to develop a Integrated Marketing Communications plan and the related tools involved.
C. General Skills
Improves written and oral communication skills Improves analytical thinking

Encourages interpersonal relations and teamwork Allows for diverse and multicultural work environment
Provides learning experience in managing in a global context
Provides learning experience in making sound decisions and exercising good judgment under uncertainty.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1. Overview of Advertising and Promotion and Marketing Objectives
2. Target Audience selection, action objectives and customer understanding
3. Communication Objectives and Brand Positioning
4. Making it work: Creative Strategy and Execution
5. Media strategy in a Digital environment
6. Campaign tracking and evaluation
7. Integrating Advertising & Promotion

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course discusses Integrated Marketing Communications topics addressing the digital world, aimed at students who have already studied Marketing. We aim to introduce you to the key Marketing Communications (Advertising & Promotion) theory, ideas and practices with the core theme of delivering benefits to customers, and build your skills on the development and implementation of a Strategic Communications Camping.

Integrated Marketing communications programs follow a Strategic planning process and are executed via implementation tactics.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course will be a mix of theory, cases and discussions. A hands-on approach to the subject will be used with many examples and material from the field.
A high student involvement is expected in class discussions and case recommendations and should be accompanied by thorough preparation of cases and readings that are available via the syllabus and class materials that can be accessed on line via moodle. For the cases the discussion questions will also be available. The web based material includes the class presentations together with the recommended and additional readings: the course allows for those who wish to explore the topic further to do so via extra material and advice, and we encourage you to do that.
ASSESSMENT
There is no final exam in this course.
40% Communications (A&P) plan-group and individual evaluation;
20% Assignments/write-ups – individual reports;
20% Class participation evaluation;
20% Midterm short test.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
During the term students will be required to prepare, in teams of up to five, a Communications Plan (A&P), that will be presented. Teams should involve students from more than one nationality, gender and from different backgrounds (e.g. previous university), and we will set them with you immediately after the first class. During the course, students are required to deliver several individual assignments or write ups.
The Communications Plan evaluation is based on communications concepts used (60%), consistency and quality of replies to questions (10%), quality of report and presentation (10%), and peer review.
The write-ups or assignments are strictly individual. Any plagiarism will be handled strictly and offenders will be punished according with the University rules.
We will have students discussing cases during several sessions. Unjustified absence to any case discussion will mean a zero grade for that class's participation. Class participation grades will be based on the quality, listening evidence and frequency of your participation in case discussions.

4.4.9. Bibliografia de consulta/existência obrigatória:

− Larry Percy & Richard Elliott (2016), Strategic Advertising Management, 5th ed. Oxford University Press
− Patrick De Pelsmacker, Maggie Geuens, Jori Van den Bergh (2017) Marketing Communications, a European Perspective, 6th ed. FT Prentice Hall
- Sunil Gupta, Joseph Davin (2015), Digital Marketing, Core Curriculum Reading, Harvard Business Publishing
- Jill Avery, Thales S. Teixeira (2016), Marketing Communications, Core Curriculum Reading, Harvard Business Publishing
− John Rossiter & Larry Percy (1997), Advertising and Promotion Management 2nd ed. New York, McGraw Hill
− John R. Rossiter and Steve Bellman (2005), Marketing Communications, theory and applications, Pearson Prentice Hall Australia
We strongly recommend you to access the WARC data base of Advertising Materials, available at Nova's Library Website: http://libraries.fe.unl.pt/index.php/e--resources/full-- text-- res/item/warc?category_id=17

Mapa IV - International Business/Negócio Internacional

4.4.1.1. Designação da unidade curricular:
International Business/Negócio Internacional

4.4.1.1. Title of curricular unit:
International Business

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
EMANUEL ROGÉRIO SABINO GOMES/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):

A. Knowledge and Understanding
• A critical understanding of various theoretical frameworks of international business;
• An ability to identify and understand the different motives and ways of entering and servicing foreign markets;
• An awareness of the different facets of the international business environment and the way these affect strategy and expectations;
• A critical understanding of international strategies firms can opt for
• A critical understanding of cross-border organizational issues.

B. Subject-Specific Skills
• The ability to assist MNEs and SMEs in developing an internationalization plan;
• The ability to research web-based sources to access international and company data.
C. General Skills
• Problem-solving;
• Decision-making;
• Critical thinking;
• Teamwork;
• Communication;
• Research.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Internationalization process of multinationals and small and medium sized firms;
Doing business in an international context;
International expansion;
Timing of internationalization;
Market selection criteria;
International Business in emerging markets

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The aim of this course is to provide students with a deeper understanding of the internationalization process of multinationals as well as small and medium sized firms, taking into account specific challenges and opportunities emerging from differences in the economic, political, institutional, cultural and competitive environments. The course will offer students theoretical frameworks that can act as practical tools to shed light on the different facets of doing business in an international context, ranging from motives for international expansion, timing of internationalization, market selection criteria, entry mode choice, to subsidiary management. Particular attention will be paid to the role of emerging markets in international business and the unique challenges and opportunities these markets present.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course uses a combination of short interactive lectures, case studies and discussions. The theoretical tools and frameworks used in the course will be introduced during the short lectures. Subsequently, students will apply them to the assigned case studies which will be discussed in detail in class. We will use a range of cases throughout the course that will provide insights into a diverse range of countries, industries and companies.
ASSESSMENT.
The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.
Class participation (15%);
Group project (35%);
Final exam (50%).

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The class participation grade is determined based on the quality and quantity of your contributions. Not participating in class discussions will affect your final grade significantly, even if you attend all classes. Without participating you will not be able to get a pass grade on the participation component.
Class participation grades are at the discretion of the instructor and are not subject to debate, bargaining or appeal. Absences, excessive tardiness, or leaving early will hurt your individual participation grade.
In class participation students should demonstrate knowledge and critical understanding of various theoretical frameworks of international business and identify different facets of the international business environment and the way these affect strategy and expectations.

Each team is required to write a report outlining an internationalization plan for a specific company, i.e. either an initial

international expansion or an expansion to a new country. Students should apply the concepts and frameworks discussed in class and discuss issues such as motivation and timing of expansion, market selection, entry mode and management of overseas operations, taking into account the differences in the environments between the home and host countries of the firm.

4.4.9. Bibliografia de consulta/existência obrigatória:
International Business, Global Edition, 3/E, S. Tamer Cavusgil, Pervez Ghauri, Gary Knight & John Riesenberger
ISBN-10: 0273787063 • ISBN-13: 9780273787068

Case studies: provided at beginning of the course.

Mapa IV - Sustainble International Business/Negócio Internacional Sustentável

4.4.1.1. Designação da unidade curricular:
Sustainble International Business/Negócio Internacional Sustentável

4.4.1.1. Title of curricular unit:
Sustainble International Business

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
DANIEL ABEL MONTEIRO PALHARES TRAÇA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
By the end of the course, students will have a broad knowledge of the interactions between businesses, institutions and the developmental challenges faced by poor nations.

B. Subject-Specific Skills
The course is built around 6 core specific topics: (1) global development – a historical overview; (2) multinationals and foreign investment; (3) policy for top-down development; (4) institutions and governance; (5) poverty, child labor and education; and (6) from entrepreneurship to private-sector jobs.

C. General Skills
Students will have strongly improved their writing and analytical skills, as they are expected to synthesise complex ideas and to display both depth and clarity of thought.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1 GLOBAL DEVELOPMENT: A HISTORICAL OVERVIEW
• The main drivers of development
• The effectiveness of Development Aid
2 MULTINATIONAL AND FOREIGN INVESTMENT
• How can developing countries compete for foreign investment?
• The benefits of foreign direct investment in developing countries
3 POLICY FOR TOP-DOW DEVELOPMENT
• The Washington Consensus and the results of its implementation
• The impact of privatization and the role of institutions
• Public-Private Partnerships
4 INSTITUTIONS AND GOVERNANCE
• The success of East Asian Countries
• The role of Governance and Institutions in Development
5 - POVERTY, CHILD LABOR AND EDUCATION
• The economy of the poor: bottom-up development
• The drivers of Child Labour and the role of Education
• Social Entrepreneurship and Social Innovation
6 - FROM ENTREPRENEURSHIP TO PRIVATE SECTOR JOBS
• The Microcredit Revolution and its impact
• Entrepreneurship and the fight against poverty
• The constraints for SME development in developing countries

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course is intended to provide future managers, expecting to work in or with developing countries, with an understanding of the current economic reality and future prospects of these nations.

The course will address several developmental challenges faced by poor nations, focusing on the role of the private sector and business managers, and stressing the implications for corporate performance. It will not cover in detail the internal operational challenges of corporations in these markets.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Classes will use case discussions and constant interaction with students. Attendance is mandatory. Active and thoughtful participation is encouraged. Students are absolutely required to read the "must read before class" bibliography and are advised to do the remaining class readings before each class to be able to participate.
ASSESSMENT.
To pass the course, a student must obtain a minimum of 8 points (out of 20) in each of the three main components and a weighted average higher than 9.5 points.
Two Individual Flash Essays (35%)
One Individual Final Exam (35%)
One Group Case-Study (30%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
At the end of sessions 2, 3, 4 and 5 a topic related to the class and currently on the news will be distributed. Students must deliver one essay of their choice among FEs 1 and 2 and another one among FEs 3 and 4 – hence students must submit a total of two flash essays (FE). The essay is due one week after distribution and is limited to 2 single-spaced pages, normal margins, Calibri or Times New Roman font types, size 12 pp. Students should research the topic, including sources on the

web, and prepare an essay, simulating the role of an advisor to a high-level personality. All sources should be listed. The reports will be judged by their originality and innovation, organization, clarity of writing and depth of the analysis and recommendations.

A short final exam, lasting for one hour and a half, covers all topics in the course. It assumes that all Class Readings have been done and class handouts have been thoroughly scrutinized. Additional readings suggested in the reading list below, will not be covered in the final exam.

In groups of 3 to 5, students can prepare a case-study on any topic broadly related to the course. The group, topic and a short outline must be communicated to the instructor by the end of session 3. The final report is due before the last session and is limited to 5 single-spaced pages. It will be judged by their originality and innovation, the use of tools developed in the course and other resources and, above all, the quality of the analysis and recommendations.

4.4.9. Bibliografia de consulta/existência obrigatória:

"Aid, Debt Relief and Trade: An Agenda for Fighting World Poverty" HBS, 2007
"Enticing Investors" Calvin McDonald, Volker Treichel, and Hans Weisfeld, Finance & Development, December 2006
"Meeting the Infrastructure Challenge with Public-Private Partnerships" BCG, February 2013
"Rwanda's President Thinks He's Indispensable" Bloomberg, 2017
"Pratham – Every Child in School and Learning Well" HBS, 2010
"Africa's New Generation of Innovators" C. Christensen et al., Harvard Business Review, 2017
"Walk, don't run" Justin Lin, The Economist, Jul 9th 2009
"Gentera: Beyond Microcredit" Harvard Business School, 2014
"Child Labour. A textbook for university students" International Labour Office, Geneva, 2014
"Fighting Corruption Won't End Poverty" Ricardo Hausmann, Project Syndicate, July 24th 2015
"Meeting the Infrastructure Challenge with Public-Private Partnerships" BCG, February 2013
"Playing to Win in Emerging Markets" BCG, September 13th 2013

Mapa IV - Management of Non Profit Organizations/Gestão de Organizações sem Fins Lucrativos

4.4.1.1. Designação da unidade curricular:
Management of Non Profit Organizations/Gestão de Organizações sem Fins Lucrativos

4.4.1.1. Title of curricular unit:
Management of Non Profit Organizations

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
MIGUEL BAPTISTA COELHO ALVES MARTINS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:

N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
Demonstrate competency in the underlying concepts, theory and tools taught in the Management of Non-Profit Organizations course.
B. Subject-Specific Skills
Be familiar with the unique features of the nonprofit sector, and how they influence decisions made by the managers regarding human resources, marketing, financial
sustainability and other aspects of a nonprofit's activities.
C. General Skills
Strengthen the analytical and critical thinking skills as well as communication skills needed to identify, analyse, and evaluate solutions to challenges encountered in the nonprofit sector.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1.Overview on the Nonprofit Sector 2.Diagnostic Management Tools 3.Strategic Planning and Management
4.Resource mobilization, sustainability and Financial Management 5.The Importance of Partnerships
6.Leadership and Human Resource Management 7.Marketing and Communication
8.Portuguese Legal and Tax Environment 9.Measuring Results and Efficiency
10. Group Work – Session I
11. Group Work – Session II

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Starting with a broad overview on the context, the structures and the specificities of the nonprofit sector this course aims to tackle a wide range of aspects related to Nonprofit Management and explore in detail the different tools and ideas around this type of organizations.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The combination of teaching methods such as case studies, short videos, class discussions and presentations wishes to foster the learning space and critical analysis and seeks to promote students' ability to develop and apply their management skills to the nonprofit sector. Classroom participation is expected and required.
ASSESSMENT.
The Final Exam is mandatory and must cover the entire span of the course. Its weight in the final grade can be between 30 to 70%. The remainder of the evaluation can consist of class participation, midterm exams, in class tests, etc. Overall, written in class assessment (final exam, midterm) must have a weight of at least 50%.
• Individual Work In-Class (30%)
• Group Work (40%)
• Individual Exam (30%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
On the Individual Work two different non-profit organizations will come to class, will present a management related challenge and the students have to solve and deliver a report till the end of the class.

The students are asked to form groups. Each group has to find a non- profit organization and figure out a specific management related problem / challenge that it is facing.
You can then either help directly the organization to solve the identified management problem, or develop the solution to that specific problem using data from the organization and the tools you find useful.

Adjustments of 0.5 points in the final grade (in either direction) can be made, based on other information available such as participation in class and contribution to the coursework and demonstrate competency in the underlying concepts, theory and tools taught in the Management of Non-Profit Organizations course.

4.4.9. Bibliografia de consulta/existência obrigatória:

Anheier, H. (2000) Managing Non-Profit Organisations: Towards a New Approach. Civil Society Working Paper 1.
Barned, J. (2009) Financial Management of Not-For-Profit Organisations. Guide CPA Australia.
Campos Franco, R., Wojciech Sokolowski, S., Hairel, E. and Salamon, L. (2004), "The Portuguese Nonprofit Sector in Comparative Perspective". Universidade Católica Portuguesa and Johns Hopkins University.
Dees, G. (1998) Enterprising Nonprofits. Harvard Business Review.
Ebrahim, A. and Rangan, V. (2010) The Limits of Nonprofit Impact: A Contingency Framework for Measuring Social Performance. Harvard Business School Working Paper.
Foster, W., Kim, P. and Christiansen, B. (2009) Ten Nonprofit Funding Models. Stanford Social Innovation Review.
Things, D. (2010) Partnerships: Frameworks for Working Together. Strengthening
Nonprofits: A Capacity Builder's Resource Library.

Mapa IV - Leadership and Change Management/Liderança e Gestão de Mudança

4.4.1.1. Designação da unidade curricular:
Leadership and Change Management/Liderança e Gestão de Mudança

4.4.1.1. Title of curricular unit:
Leadership and Change Management

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
FILIPA VIEIRA DA SILVA CASTANHEIRA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):

A. Knowledge and Understanding
• Define and compare differences between leadership and management
• Examine leadership as a process that drives changes
• Examine the leader's role as it relates to bringing about constructive change to an individual, a team, and an organization
• Research, analyze, and discuss how to bring about change and remove the barriers to change including resistance to change
• Discuss and evaluate differing Change Management models

B. Subject-Specific Skills
• Critical thinking on organizational change
• Self-assessment of one's own leadership attributes
• Interpersonal relations

C. General Skills
• Communication (written, verbal and graphical)
• Team work
• Analytical skills

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1. Leadership and Management
Leadership and Management: Complementary roles Leader, followers, and leadership
Definition of Leadership: A review
A critical review of the trait approach to leadership Change in Organizations
2. Leadership: Adapting your style to the situation and power differential
A critical review of the behavioral and the situational approaches to leadership The contingency leadership model
Transactional and Transformational Leadership Power, Influence, Authority, and Leadership
3. Leadership and followers
The incomplete leader and the Followership Theory Self-Leadership
Toxic Leaders: Consequences for followership
4. Change as it relates to people: Insights for Leadership
Debate about changes in the world and the impact in people and decision making.
5. Group presentations
"Bad leadership" case studies.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course will focus on the relationship between organizations and change. Leadership emerges as a driver of change because the work of a leader is to constantly look forward and provide the necessary changes for the organization. The leader's role as a change agent will be a focus of the course. In addition, various models of change will be introduced and explored. Understanding various methods of bringing about change will be discussed during classes.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
A variety of teaching and learning methods will be used in this course. Every session will have lectures, educational videos, paper and case study discussions by students.
ASSESSMENT.
(A) "What to ask the person in the mirror?" 1 individual report: 20%
(B) "Bad leadership" 1 group presentation: 35%
C) Final exam: 45%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

Individual report
Instructions
Good leaders are competent in leading themselves. This report will consist in a self-analysis exercise: Who do you want to be as a leader? What have you done so far? How do you learn? What's your major competence? What do you have to change about yourself?
For inspiration you can read Kaplan's HBR paper "What to ask the person in the mirror" (January 2007, and Boaz and Fox's McKinsey Quarterly paper "Change Leader, Change thyself" (March, 2014). Imagine your leadership journey and prepare a two-page report. Please note: this is not a confession: it is a reflexive moment. Good leadership is also about self-reflection. Use it as a time to think about the journey you are about to begin.

Group presentation
Instructions
Identify a leadership process that, for some reason and according to some criteria, has failed (from the arts, business, politics, religion, history, sports). What can we learn from the case about management?
Submit the choice to the instructor's approval.
Your group (4-5 students) will present the case to the class. Describe why that person was initially a good leader and then explain why the process has failed? What can we learn from it?
Presentation followed by discussion should take up to 25 minutes. Groups should be prepared to stimulate class discussion. Every member of the group has to take part and participate in the presentation/discussion.
A copy of presentation materials (including powerpoint slides) is due at the BEGINNING of the session in which it is presented. Students may share the presentation with other colleagues (link in the moodle page to upload the pdf file).
Evaluation will be performed with a 180º feedback process. The final grade for the group's assignment is calculate by: 50% Professor's evaluation + 50% students' average evaluation.

In each Individual report/Group presentation/Individual class participation the professor follow the learning objectives and a criteria:
Diagnosis
Strengths
Weaknesses /fears
Reflexivity/Interpretation
Development
Goals /Profile
Plan
Realism/Objectivity
Organization of ideas
Presentation Guidelines

4.4.9. Bibliografia de consulta/existência obrigatória:

Handbooks (You may pick selected chapters from one of the following handbooks)
Northouse, P. (2010). Leadership. Theory and Practice (5th ed.). Thousand Oaks, CA: SAGE Publications.
Yukl, G. (2013). Leadership in Organizations (Global Edition, 8th ed.). Upper Saddle River, N.J.: Person Education.

Specific readings (papers and case studies) distributed in class.

Mapa IV - Global Business Challenges/Desafios dos Negócios Globais

4.4.1.1. Designação da unidade curricular:
Global Business Challenges/Desafios dos Negócios Globais

4.4.1.1. Title of curricular unit:
Global Business Challenges

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOSÉ MANUEL ALBUQUERQUE TAVARES/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding:
- *Understand the relationship between economic growth, technological progress, and business opportunities*
- *Gauge the process o globalization, including the nature and role of emerging markets*
- *Map the symbiotic relationship between business and government, its risks and evolution*
- *Examine and prepare for new challenges posed by new and traditional media outlets, and social activism*

B. Subject-Specific Skills:
- *Apply fundamental concepts in management and economics to specific real world business situations*
- *Relate concepts with figures and data-like hard evidence*
- *Assess current global transformations and their likely impact on specific business ventures*

C. General Skills:
- *Combine individual skills with group thinking and delivery*
- *Present information in a logical yet motivating fashion*
- *Combine empirical and conceptual knowledge*
- *Extract relevant insight and motivate action from a wide set of inter-related information*

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Topic 1 What About the Future?
Topic 2 Market and Non-market
Topic 3 Data and Stories
Topic 4 Growth and Emerging Markets
Topic 5 Technological Progress
Topic 6 People: Ageing and Urbanization
Topic 7 Globalization: Trade and Finance
Topic 8 Global Crises
Topic 9 Business and Government
Topic 10 Inside Future Firms
Topic 11 Business and the Masses: Activists and the Public
Topic 12 Media and New Media
In Closing "I Have a Dream Speech", Martin Luther King, Full Text

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The course "Future Business" characterizes and addresses the opportunities and threats to business corporations stemming from the evolving nonmarket environment. The non-market environment comprises all elements of the business

context that are beyond the direct control of the firm, not mediated by explicit markets, prices, or contracts. These include global trends in economic growth, technological progress, demography and lifestyle, changes in economic integration and the emergence of new economies, as well as the evolving role of government, mass media and social activism. Many opportunities for future business will come
from being aware and exploiting non-market trends, which requires special training and attention on the part of managers. These trends intertwine technology, culture, economics, politics, and management processes in ways that are far from obvious, but whose familiarity with ill deliver value in the coming future.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Teaching will integrate concepts from management and economics in class material, analyse and draw lessons from a variety of case studies illustrative of the opportunities in the non-market environment. We will combine analytical tools and traditional case studies with video case studies and illustrations from other media. The teaching methods will include: 1. Case studies, 2. Video case studies, 3. Call to concepts and 4. Empirical exposure.
ASSESSMENT
The group presentations and the final report will account for 40 % of the course´s grade. A final exam will test at an individual level the basic understanding of concepts and issues addressed in the course, with a weight of 50% in the final grade. Class participation will account for 10% of the final grade.
The case studies should be read before class. The student will benefit from reading all proposed readings before the final exam. Video case studies do not require prior preparation.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Teaching will combine analytical tools and traditional case studies with video case studies and illustrations from other media. The teaching methods include:
1. Case studies - exploring a set of important and diverse situations, developed by top business schools and consulting firms, and providing opportunity for an in-depth discussion of complex issues on the creation of future value;
2. Video case studies – short videos, at most 15 minutes long, that require an immediate and interactive response, providing a real-life situation where logical and persuasive argumentation is key;
3. Call to concepts - clear presentation of important concepts from economics and management that have a bearing on developing a corporate non-market strategy, providing a strong background of clear, logical thought to further strategic insights;
4. Empirical exposure – ways to use and analyse data in novel and creative ways, so to extract valuable strategic insight from hard evidence.

Students will be asked to form groups in order to produce an original and valuable future strategy for a real, existing, international corporation. Each group will be asked to produce a final written report.
The group project tests the creative application to real corporations and real world situations of all the tools and thinking acquired in class. In class presentations and in the final report, groups are strongly encouraged to use standard tools of business analysis and apply them to the corporation´s specific nonmarket environment. Those include, but are not limited to, SWOT analysis – Strengths, Weaknesses, Opportunities and Threats -, PEST analysis – Political, Economic, Social, and Technological Changes -, Porter´s 5 Forces, as well as tables, graphs, statistical applications, photographic and video sources, etc. Creativeness in applying these and other analytical tools will be highly rewarded. Grades are awarded on the basis of illustrative and motivational power, as well as depth in the use of analytical and logical tools.

4.4.9. Bibliografia de consulta/existência obrigatória:

- *“The Four Global Forces Breaking All the Trends”, Richard Dobbs, James Manyika, and Jonathan Woetzel, McKinsey, 2015*
- *Barack Obama on the Way Ahead, The Economist 2016*
- *“Manufacturing the Future: The Next Era of Global Growth and Innovation”, McKinsey Global Institute, 2012.*
- *“The Eight Essentials of Innovation”, Marc De Jong, Nathan Marston, and Erik Roth, McKinsey, 2015*
- *“Global Growth: Can Productivity Save the Day in an Aging Wold?”, McKinsey Global Institute, 2015*

“Harnessing the Power of Shifting Global Flows”, Jacques Bughin, Susan Lund, and James Manyika, McKinsey Global Institute, 2015

- *“How do you govern a disrupted world?”, Richard Dobbs, James Manyika, and Jonathan Woetzel, McKinsey, 2015 – See “What About the Future ?”*
- *“Life Expectancy of Organizations”, Martin Reeves and Lisanne Pueschel, BCG Perspectives, Boston Consulting Group, 2015*
- *“Navigating the Politics and Emotions of Change”, Ellen R. Auster and Trish Ruebottom, Sloan Management Review, MIT, 2013*

Mapa IV - Competition Policy/Política da Concorrência

4.4.1.1. Designação da unidade curricular:
Competition Policy/Política da Concorrência

4.4.1.1. Title of curricular unit:
Competition Policy

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
PEDRO LUÍS DE OLIVEIRA MARTINS PITA BARROS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Specific objectives: Knowledge and understanding: At the end of the course students are expected to: Understand the economic rationale for and scope of Competition Policy, to know the economic principles of competition policy; Dominate the basic concepts and models of antitrust analysis; market power, relevant markets, abuse of market power and collusive behaviour.
Specific skills: Be able to apply microeconomic concepts and tools and in particular the theory of oligopoly and game theory to analyse and discuss major competition problems. At the end of course you should be able to use economic tools to support positions in competition cases; to understand the economic principles that helps to judge when and how competition is restricted; to understand how to define relevant markets; and, to assess market dominance situations.
General skills: Improve the ability to make written reports; improve the ability to perform a well-founded critical analysis of competition policy cases.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Topics:
- *Competition Policy in Europe. Competition Policy in Portugal.*
- *Market Power and welfare.*
- *Definition of relevant markets.*

- *Vertical restraints*
- *Predatory strategies.*
- *Collusion. Leniency.*
- *Horizontal mergers.*

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The objective of this course is to apply microeconomic concepts and tools to the issues of Competition Policy. Besides the theoretical analysis of the questions involved, attention will be devoted to policy issues, and to the approaches followed in the EU and Portugal. Some knowledge of market interaction theory is helpful but no pre-requisite course exists. Students may take refresh readings.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course will have a mix of ex-cathedra sessions, class discussions and take-home problem-solving questions.
ASSESSMENT
Final exam (F) – 40% (a minimum grade of 8 in the exam is required).
Assignments (A) – 25% each, 3 assignments will have to be delivered.
The worst 15% of your grade will be discarded.
The final grade, G, is obtained, before adjustment for participation in class, as G=0,4 F + 0,25 A1 + 0,25 A2 + 0,25 A3 – 0,15 min{ A1, A2, A3}.
Participation in class – final grade adjustments of up to 2 points (upwards or downwards) can be made based on participation in class.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Assignment 1 (individual work): Students are required to select a country (free choice), and provide a summary report on its competition policy, according to the points detailed in the syllabus (topics) and in the assignment description. The objective of the assignment is to get you acquainted with the competition policy that applies to that country, in comparison with European Union rules. This will show the student knowledge and understanding of the economic principles of competition policy and how he dominates the basic concepts and models of antitrust analysis, market power and collusive behaviour.

Assignment 2 (group work): Provide a report on one of the topics in the syllabus. The report should follow the guidelines set in the assignment description. Groups should be constituted by 3 to 5 students. This will show the students are able to use economic tools to support positions in competition cases.

Both assignments improve the ability to make written reports and the ability to perform a well-founded critical analysis.

4.4.9. Bibliografia de consulta/existência obrigatória:
Philip Lowe, 2009, The design if competition policy institutions for the twenty-first century: the experience of the European Commission and the Directorate-General for Competition, in X.
Vives, editor, Competition Policy in the EU – Fifty years on from the Treaty of Rome.
Massimo Motta, 2004, Competition Policy – Theory and Practice, Cambridge University Press. [Textbook]
Preliminary readings: Church and Ware, Industrial Organization – A Strategic Approach,
(available as PDF): chapter 2 - welfare economics of market power; chapter 4.1 - sources of market power; chapter 7 - Game Theory I; chapter 8 - Classic models of oligopoly

Mapa IV - Credit Risk/Risco de Crédito

4.4.1.1. Designação da unidade curricular:
Credit Risk/Risco de Crédito

4.4.1.1. Title of curricular unit:

Credit Risk

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOÃO PEDRO DOS SANTOS SOUSA PEREIRA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
1. Understand the main drivers of credit risk
2. Know the main techniques used to measure and manage credit risk
B. Subject-Specific Skills
1. Estimate probabilities of default
2. Compute the Credit Value-at-Risk of a bond portfolio
3. Price and use credit derivatives
C. General Skills
1. Improve analytical thinking
2. Use IT tools available to managers
3. Financial theories and markets

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1. Foundations for credit risk modelling
Default loss; exposure; loss given default; probability of default; portfolio default loss.
2. Estimation of default probabilities
Agency credit ratings; credit scoring and internal rating models.
3. Structural approach to credit risk
Merton's model; Moody's-KMV EDF
4. Portfolio models
Credit migration approach (CreditMetrics)
5. Valuing defaultable bonds
Credit spreads (G, I, Z); Risk-neutral pricing
6. Credit derivatives

Credit default swaps (CDS); credit spread options; total return swaps; credit- linked notes.
7. Collateralized Debt Obligations

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Credit risk is the possibility that a counterparty defaults on a payment. This course covers the main concepts and techniques required to manage the risk of portfolios of credit-sensitive assets, such as corporate bonds or loans. We will also learn how to use credit derivatives to manage credit risk, focusing particularly on Credit Default Swaps. Finally, we will study more complex structures, such as Collateralized Debt Obligations, which were at the forefront of the financial crisis of 2008. The materials covered in this course are relevant to commercial and investment banks and to any large firm with credit-sensitive assets.
The correspondence between the course content and the learning goals are as follows (Learning Objective - Unit content) item:
A1 - 1
A2 - 2, 3
B1 - 2
B2 - 4
B3 - 6
C1 - 1 to 7
C2 - 3 to 6
C3 - 1 to 7

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course will follow a standard lecture mode. There will be regular take-home projects.

ASSESSMENT
The final grade is computed as follows:
• Final exam: 50%
• Group projects: 50%
o There will be around 6 or 7 take-home project assignments. The projects should be done in groups of one, two (recommended), or three people. Most projects will be small (requiring only a couple of hours of work), but a few will be more demanding. Some of the projects will require the simulation of stochastic models. The use of Matlab is encouraged, though not required.
• Class participation

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The exam is closed-book and closed-notes. However, you may use a two-sided A4 formula sheet and a pocket calculator. There will be around 6 or 7 take-home project assignments. The projects should be done in groups of one, two (recommended), or three people. Most projects will be small (requiring only a couple of hours of work), but a few will be more demanding. Some of the projects will require the simulation of stochastic models. The use of Matlab is encouraged, though not required. This will show how students apply the main techniques used to measure and manage credit risk (A2), estimate probabilities of default (B1), understand financial theories and markets (C3) and the main drivers of credit risk (A1).
By class participation instructor also evaluate the learning objectives A and B and the improve of analytical thinking (C1).

4.4.9. Bibliografia de consulta/existência obrigatória:
A set of handouts will be distributed in class.
The following additional references may be helpful:
1. Lando, 2004, Credit Risk Modeling, Princeton University Press.
2. Smithson, C., 2003, Credit Portfolio Management, Wiley.
3. CreditMetrics - Technical Document, JP Morgan, 1997.
4. Chaplin, 2010, Credit Derivatives, Wiley.
5. Schönbucher, P.J., 2003, Credit Derivatives Pricing Models: Model, Pricing and Implementation, John Wiley & Sons.
RESOURCES
• http://www.moodysanalytics.com/ for Moody's-KMV docs
• http://www.msci.com/products/risk_management_analytics/creditmanager/ for CreditMetrics docs

• http://www.bis.org/ for Basel docs
Useful entertainment:
• "The Big Short" movie (2016), based upon the book by Michael Lewis on the 2007-2008 financial crisis

Mapa IV - Environmental Policy/Política Ambiental

4.4.1.1. Designação da unidade curricular:
Environmental Policy/Política Ambiental

4.4.1.1. Title of curricular unit:
Environmental Policy

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
MARIA CLARA REYNAUD CAMPOS TROCADO COSTA DUARTE/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Learn how economic activity depends upon and affects the natural environment.
• Understand ways in which markets fails to efficiently allocate environmental resources.

B. Subject-Specific Skills
• Understand environmental policy objectives and environmental control policy instruments in different settings.
• Use the economic framework and knowledge to evaluate environmental problems and policies

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1- Introduction
1.1 - The environmental problem
1.2 - Basic economic tools: Targets and policy instruments 2- Pollution Control: defining pollution targets

2.1 - General equilibrium: Pareto Optimal Pricing rules
2.2. - Introducing space: degree of pollutants mixing
2.3 - Introducing time: flow and stock pollutants 3- Pollution Control: State policy instruments 3.1- How to evaluate policies?
3.2 - Cost effective pollution control instruments
3.3 - Other pollution control instruments 4- Environmental Policy
4.1. Other environmental policy instruments
4.2. The role of corporations and individuals: "It pays to be green?"

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The course begins with a presentation of diverse environmental problems and their main economic causes and consequences. The next item is the study of the economic models and tools used to analyze pollution control specific issues. Grounded on these analytical tools we study how different settings may affect de definition of "efficient" policy targets. Then a comparative study of different pollution control policy instruments is presented, evaluating both its expected impact and economic efficiency. Finally, other possible instruments of environmental policy are examined, highlighting their potential use and situations where they might be more efficient. In all topics attention is paid to specific policy issues

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Classes: Lectures on course topics based on illustrative examples, review and discussion.
Instructor Office Hours: Individual questions on course topics and study guidance.
ASSESSMENT.
- Final Exam - 40% - (min grade - 9). The final exam will cover the whole course, and will be closed book.
- Homework assignments - 40%
- Class quizzes - 10%
- Class discussion ad oral presentation- 10%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The course will involve a good deal of homework mostly required readings and working on handout assignments and problem sets.
On average, students should expect approximately 6/8 hours of work per week outside of the classroom. Course schedule and detailed reading list on the web page.
There are regular homework assignments and class quizzes. Assignments are due at requested dates on course schedule. Students may work in a team (Max 3 elements) in assignments but cannot keep the same team for more than one assignment.
By assignments the instructor evaluate the students understanding of environmental policy objectives and environmental control policy instruments and the use the economic framework and knowledge to evaluate environmental problems.

Teamwork and homework collaboration is encouraged. It goes without saying that homework deliverables are signed (copied answers will reduce grades for those doing the sharing) and for quizzes and final exam you are on your honor to execute it individually and neither receive or give aid.

By quizzes, final exam and class participation the instructor evaluate what students learn about how economic activity depends upon and affects the natural environment which markets fails to efficiently allocate environmental resources.

Students must demonstrate the ability to communicate and express ideas and thoughts and to work in groups. They may also show critical thinking skills.

4.4.9. Bibliografia de consulta/existência obrigatória:
Perman, R., Ma Y., Common, M., Maddison, D., McGilvray, J., Natural Resources and Environmental Economics, 4rd ed, Addison Wesley, 2011. (Available at the Library)

RESOURCES.
Available to download from course web site: Reading list, Homework assignments, Problem sets, Class slides.

Mapa IV - Futures and Options/Futuros e Opções

4.4.1.1. Designação da unidade curricular:
Futures and Options/Futuros e Opções

4.4.1.1. Title of curricular unit:
Futures and Options

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
JOÃO MANUEL GONÇALVES AMARO DE MATOS/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
Understand and explain the use of futures, Options and other Derivatives
B. Subject-Specific Skills
Understand and implement the principles of Pricing and Hedging
C. General Skills
Improves analytical thinking
Improves the ability to translate knowledge into business and academic practice
Improves intuition about financial markets
Provides learning experience in making decisions under uncertainty
Introduces basic knowledge about financial instruments and financial markets' mechanisms

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Class 1: Introduction to Futures and Forwards
Class 2: Mechanics of Future Markets
Class 3: Hedging with forwards/futures
Class 4: Determination of forward and future prices
Class 5: Swaps
Class 6: Credit Default Swaps

Class 7: Options contracts, markets and strategies
Class 8: No-arbitrage principles
Class 9: Binomial trees and option pricing
Class 10: Case Study Presentation
Class 11: From Binomial tree to models of stock returns
Class 12: The Black-Scholes valuation for European options

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The course requires no earlier knowledge of Finance theory. The contracts are described in qualitative terms, as well as their applications, requiring no particular mathematical knowledge. Pricing and hedging principles are described in qualitative terms. Its practical implementation requires some basic mathematical principles. The most mathematically demanding topics are hedging implementation, the Binomial valuation model and the Black-Scholes. However, the basic quantitative courses offered should be more than sufficient to overcome any difficulties. The Syllabus covers explicitly futures, forwards, swaps and options, explaining the relation between these instruments and the evolution of their design sophistication. Students are assumed to study beyond exercises and examples used in class and be able to use the general principles to solve other related problems. In that sense students are sure of a true learning process on the topic of the course.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Lectures in class (twice a week)
Weekly quizzes on Moodle in order to regularly revise the material
Students are assumed to follow the Khan Academy topics in order to prepare for classes
An intermediate case study to be prepared and presented in group
Final exam
ASSESSMENT
- *Case study 25%*
- *Quizzes 25%*
- *Final Exam 50%*

The Final Exam is not composed of exercises similar to those in the quizzes or those used in class as examples. Students are assumed to study beyond those exercises and examples and be able to use the general principles to solve other related problems.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
This course is designed for students who are not necessarily from the area of Finance or have not yet completed or followed the course of Investments. Its content is intended to be an introduction to derivatives, focusing on their economic content, strategic use and little mathematics. We introduce the basics derivatives instruments namely futures, forwards, swaps and options. The last four classes (on options) repeat material taught in the course of Investments. The course is also about financial markets in the sense that explores the uses of such instruments, their pricing principles and trading mechanisms.

The correspondence between the teaching methodologies and the learning goals are as follows:
Learning Objective - Teaching methodologies

Understand and explain the use of futures, options and other Derivatives(A. Knowledge and Understanding) - Lectures in class/Weekly quizzes

Understand and implement the principles of Pricing and Hedging (B. Subject-Specific Skills) - Lectures in class/Weekly quizzes (regularly revise the material)

Improves analytical thinking (C. General Skills) - Class participation/intermediate case study

Improves the ability to translate knowledge into business and academic practice (C. General Skills) - Lectures in class/Weekly quizzes/intermediate case study

Improves intuition about financial markets (C. General Skills) - Lectures in clas/Apply Khan Academy topics

Provides learning experience in making decisions under uncertainty (C. General Skills) - Apply Khan Academy topics

Introduces basic knowledge about financial instruments and financial markets' mechanisms (C. General Skills) - Lectures in class/Weekly quizzes

4.4.9. Bibliografia de consulta/existência obrigatória:

- *John Hull, Options Futures and Other Derivatives, Pearson, New York, 2014 (main text).*
- *Jarrow and Chatterjea, Derivative Securities, Financial Markets and Risk Management, Norton, New York, 2013 (auxiliary text).*

RESOURCES.

- *Slides from classes*
- *Case Study: The B.F. Goodrich-Rabobank Interest Rate Swap*
- *Link to the Khan Academy webpage: https://www.khanacademy.org/economics-finance-domain/core-finance/derivative-securities*

Mapa IV - Corporate Valuation/Avaliação Corporativa

4.4.1.1. Designação da unidade curricular:
Corporate Valuation/Avaliação Corporativa

4.4.1.1. Title of curricular unit:
Corporate Valuation

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção livre

4.4.1.7. Observations:
Elective (free)

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
MARIA ROSÁRIO CAMPOS SILVA ANDRÉ GOUVEIA/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding- Understanding
- the key drivers of a company's value, namely the return on investment and growth potential
- the opportunity cost of capital
- the assumptions behind the various alternative valuation methods and their practical limitations

B. Subject-Specific Skills - Being able to:
- derive the cash flows for valuation purposes, and decompose them by business units
- analyze the company's past performance per business unit, as a tool to help the capital budgeting process.
- perform capital budgeting and to construct a valuation model.
- incorporate uncertainty and risks in the valuation process
- estimate the opportunity cost of a cash flow stream
- compute the shareholders' value by applying alternative valuation methods, and being able to interpret the results
C. General Skills - Ability to:
- learn individually and to work in group
- gather, analyze and interpret practical real-life data
- work with limited time and real-life information

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
(i) Calculation of cash flows for valuation purposes. Translation of a company's performance into a stream of cash flows.
(ii) Estimation of a company's short and long term performance (capital budgeting), for industrial and financial institutions – namely, what may affect their long term potential for value creation and their growth prospect.
(iii) Identification of sources of risk. Relate risk to required return. Practical examples of opportunity cost of debt and cost of equity.
(iv) Alternative valuation methods: DCF, FTE, EVA, NAV, Multiples, among others.
(v) Specific cases of valuation, when there are no direct comparables: e.g. startups, firms in developing countries, private companies (debt not traded, shares not listed).
(vi) Valuation of companies with various business units and operating in various geographies and with various currencies

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course is designed to train the participants in valuing corporate stocks and in assessing the main components of a company's value.
Along the course, students will review alternative valuation models, their usefulness and some practical issues relating to their application.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
The course will have 12 sessions.
The course will count on the students' active participation, both in class and in the preparation of classes.
Prior to each session, students will be given the topics to discuss in the next session, the suggested reading material and some simple assignments (mostly optional) to prepare and to discuss in the class.
ASSESSMENT
The final grade will be the result of:
- 1 Individual Home Assignments (10%)
- Group Work (25%)
- Final Written Exam (65%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The course will have 12 sessions.
The course will count on the students' active participation, both in class and in the preparation of classes.
Prior to each session, students will be given the topics to discuss in the next session, the suggested reading material and some simple assignments (mostly optional) to prepare and to discuss in the class. During the classes the instructor will explain the topics and will review with the students some ways to solve the assignments, compare the results and the theories, and review the usefulness and assumptions behind each approach. Each session will end up with wrap up conclusions about the topics discussed. For each main topic, students will be given individual assignments to consolidate what was learnt in class.
The final grade will be the result of:
- 1 Individual Home Assignments (10%) – The assignment consists in a short exercise related to topics discussed in class.

- Group Work (25%) – The Group Work consists in the valuation of a real company or project (to be defined later by the instructor) and is intended to wrap up the course's main topics. Each group will deliver a maximum 5 pages report and the Excel valuation spreadsheet with all the calculations. Each Group will have a maximum of 4 students.
- Final Written Exam (65%) – the Final Exam is mandatory. Students must obtain a minimum mark of 9/20. The Final Exam is closed book, with the exception of a double side A4 sheet.

4.4.9. Bibliografia de consulta/existência obrigatória:
- T. Koller, M. Goedhart, and D. Wessels, Valuation: Measuring and Managing the Value of Companies, McKinsey & Company, John Wiley & Sons, 5th ed.
- J. Berk, and P. DeMarzo, Corporate Finance, Pearson, 3rd ed.

Mapa IV - Strategy for the Digital Age/Estratégia na Era Digital

4.4.1.1. Designação da unidade curricular:
Strategy for the Digital Age/Estratégia na Era Digital

4.4.1.1. Title of curricular unit:
Strategy for the Digital Age

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
AVELINO MIGUEL DA MOTA DE PINA E CUNHA/11,5H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
SÓNIA CRISTINA DUARTE OLIVEIRA/11,5H

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
This course aims at providing an understanding of what takes to build and run organizations that thrive in the digital age. It revolves around three main core principles:
1) the experience the organization builds with customers, partners and employees blending a mix of digital and human elements;
2) the need for a platform where digital assets can be assembled and changed and
3) the culture of the organization that blends strong leadership and goals with self-sufficient, interdisciplinary teams empowered with extreme autonomy and the charter to fail fast and cheap.

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

DIRECTION SETTING
Strategy in the digital age
How is strategic change changing?
Formulating strategy: Setting the destination
How to know where you're heading to?
DRIVING THE STRATEGY PROCESS
Executing fast and well
How can organizations avoid the short-term trap without falling in the planning trap?
Measuring in the age of the digital
How to use measurement to create agility?
CHANGING TYRES
Improving the team
Competing for the future through paradox

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

We discuss how managing in the 21st century is about coordinated flexibility rather central control. In a context of hyper-competition, vision and a clear purpose are fundamental to stimulate the creation of collaborative forms of organization.

We discuss the importance of setting the destination right since the beginning.

Strategy is execution! The duality of planning and doing defines the quality of an organization.

A critical competence for managing in turbulent environments refers to the capacity to update one's knowledge and to develop a paradoxical mindset, as managerial action involves the articulation of opposite requirements (local vs global; traditional vs digital). We discuss the fundamentals of paradox and how to use it.

Competition in high velocity environments requires the continuous qualification of the organization's human capital.

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

We discuss how managing in the 21st century is about coordinated flexibility rather central control. In a context of hyper-competition, vision and a clear purpose are fundamental to stimulate the creation of collaborative forms of organization.

We discuss the importance of setting the destination right since the beginning.

Strategy is execution! The duality of planning and doing defines the quality of an organization.

A critical competence for managing in turbulent environments refers to the capacity to update one's knowledge and to develop a paradoxical mindset, as managerial action involves the articulation of opposite requirements (local vs global; traditional vs digital). We discuss the fundamentals of paradox and how to use it.

Competition in high velocity environments requires the continuous qualification of the organization's human capital.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

The course will use the following methods:
Lectures
Class discussion
Case studies
Training films
Team presentations
Real world examples
Self-analysis
360 degree feedback

ASSESSMENT
Evaluation is organized as follows:
Class attitude and participation: 15%
Team presentations: 30%
Project (in teams): 40% (

Individual short essay: 15%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Class attitude and participation
Participation grade is based on attendance, attitude, and added value. Students are not expected to have all the right answers in a discussion or to adopt a dominant attitude. They are expected to be well prepared, careful, and constructive. It is expected a continuous learning feedback,
Top contributions: These students make a positive difference, improving the learning process and pushing the discussion to a higher level. Top class contributors clarify points that others may not understand, prepare all assignments in a timely and thoughtful way and are actively and consistently involved in the class.

Group presentations
Teams will prepare a 10 minute documentary on the topic assigned. A documentary is a film based on or re-creating an actual event, life story, etc., that purports to be factually accurate and contains no fictional elements: hence not a piece of fiction or a role play. The documentary will be followed by a 10 minute Q&A session. They are of equal importance to the final evaluation of this item.

Project (in teams):
Explore a real example of digital transformation. Inquire a real organization and inquire:
How the organization approached digitalization
The challenges it faced
Successes and failures
Plans for the future

Individual short essay
Reflect about and critically discuss the presence of digital in your everyday life and its impacts.

4.4.9. Bibliografia de consulta/existência obrigatória:
Gregersen, H. (2017). Bursting the CEO bubble. Harvard Business Review, March, 76-83.
Edmondson, A. (2018). the fearless organization.
Smith, W.K., Lewis, M. & Tushman, M. (2016). "Both/and" leadership. Harvard Business Review, 94(5), 63-70.
Brown, S. & Eisenhardt, K. (1998). Competing on the edge. Strategy as structured chaos. Boston, MA: Harvard Busiuness School Press.
Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading digital: Turning technology into business transformation. Boston, MA: Harvard Business Press

Mapa IV - Personal and Career Development/Desenvolvimento Pessoal e de Carreira

4.4.1.1. Designação da unidade curricular:
Personal and Career Development/Desenvolvimento Pessoal e de Carreira

4.4.1.1. Title of curricular unit:
Personal and Career Development

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Semestral

4.4.1.4. Horas de trabalho:
112

4.4.1.5. Horas de contacto:
112

4.4.1.6. ECTS:
4

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
RITA MARIA FERREIRA DUARTE DE CAMPOS E CUNHA/112H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding:
To promote personal and labor market knowledge, create a career plan and a successful search of employment, considering the inclusion in the job market according to personal and professional objectives/interests.
B. Subject-Specific Skills:
Develop leadership, communication, ethics and intercultural relationships skills, essential to personal and professional growth.
C. General Skills:
Apply problem solving, creativity, innovation and design thinking skills.
Strengthen qualifications in the use of analysis and information management programs.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Self knowledge
Create a career plan.
Job search: recruitment and selection processes, application to offers.
Leadership
Communication
Ethic
Intercultural relationships
Problem solving
Creativity
Innovation
Design thinking
Programs for analysis, information management and data protection
Sectors of economic activity, organizations/companies, labor functions and trends in the national/international market

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Contents concerning self-knowledge, creation of a career plan, preparation of applications, job search, and recruitment and selection processes are intended to promote the insertion in labor market, according to their personal and professional objectives/interests.
Content in the field of leadership, communication, intercultural relations and ethics are designed to promote the personal and professional growth.
Programmatic contents such as design thinking, problem solving, creativity and innovation aim to stimulate the capacity to apply these skills.
Contents of programs for analysis, information management and data protection aim to expand students knowledge.
The introduction of themes related to the real labor market (sectors of economic activity, organizations/companies, labor

functions and trends in the national/international market) are intended to ensure the proper knowledge of what the market has to offer considering personal and professional fulfillment.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Workshops
Group coaching
Study trips
Feedback
Corporate, partners and alumni presentations
Mentoring
Informational interviewing
Assessment Centres
Mock interviews
Psychometric tests
Networking
Career Fairs
Business Games
Role-plays
Case-studies
Outdoors
Search methods
Brainstorming

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
Methodologies such as workshops, counseling, mentoring, coaching, informational interviewing, networking, study trips and career fairs aim to: promote self-knowledge; know job market; create an adjusted career path; search for effective work.
Methodologies such as workshops, assessment centers, mock interviews, psychometric tests aim to ensure students get well prepared for recruitment processes.
Methodologies such as workshops, case studies, brainstorming, outdoors role-plays and business games aim to develop leadership, communication, ethics, intercultural relations, creativity and innovation skills.

4.4.9. Bibliografia de consulta/existência obrigatória:
There is no specific bibliography. However, depending on the topic, students are expected to use information in the Nova SBE Library and Career Services as well as through reports and research papers and also websites/platforms.

Mapa IV - Machine Learning

4.4.1.1. Designação da unidade curricular:
Machine Learning

4.4.1.1. Title of curricular unit:
Machine Learning

4.4.1.2. Sigla da área científica em que se insere:
MQ

4.4.1.3. Duração:
Semestral

4.4.1.4. Horas de trabalho:
196

4.4.1.5. Horas de contacto:
46

4.4.1.6. ECTS:
7

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
QIWEI HAN/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
RAYID GHANI/23H

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• What role Machine Learning can play in designing, implementing, evaluating, and improving organizational or public policies.
• How Machine Learning methods work, how to use them, and how to building machine learning pipelines/systems.
• How to tackle decision-making problems using Machine Learning methods and tools
B. Subject-Specific Skills
Students will have hands-on experience using popular programming languages such as Python and SQL to perform machine learning tasks.
C. General Skills
Student will be able to describe and apply machine learning concepts, steps, tools and technologies that are used in today's data science projects. They will also identify critical issues associated with the supervised and unsupervised learning algorithms and will learn how to use them for public policy problems in areas such as education, public health, sustainability, economic development, and public safety.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
• Overview of the Machine Learning Process
1. Understand Problem
2. Map to Machine Learning formulation
3. Understand the Data, Data Exploration, Data Stories
4. Machine Learning Pipeline Development
4.1. Setup the problem
4.2. Feature Development
4.3. Modeling
4.4. Evaluation
4.5. Deployment
• Machine Learning Methods
1. Supervised
1.1. Logistic Regression
1.2. KNN
1.3. Trees
1.4. NNs
1.5. SVM
1.6. Random Forests
1.7. Ensemble Methods
2. Unsupervised
2.1. Clustering
2.2. Association Rules
2.3. PCA and related methods
• Feature creation/engineering
• Model Selection

• Evaluation
• Text Analysis
• Network analysis
• Ethics, Privacy, Transparency, Bias

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Students will learn essential data duration concepts and apply practical machine learning techniques to manage data effectively for business analytics problems.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Students are required to bring own laptops for in-class exercises and quizzes. This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes in social sciences.
ASSESSMENT
The overall evaluation of performance consists of 5 parts
• Individual Assignments: 30%
• Mid-Term (extended assignment): 20%
• Weekly Class Reviews: 15%
• Class Participation: 10%
• Project: 25%
o Proposal and Proposal Presentation: 7.5%
o Progress Report: 5%
o Final Report and Presentation: 12.5%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
This course will be an introduction to machine learning techniques and how to use them to help solve social, managerial, and public policy problems.
This course is designed for social science students who are interested in learning modern, scalable, computational data analysis methods (buzzwords include machine learning, data science, big data, AI), and apply them to social and policy problems.
This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes in social sciences.

4.4.9. Bibliografia de consulta/existência obrigatória:
• Data Science for Business. Foster Provost and Tom Fawcett
• Machine Learning: The Art and Science of Algorithms that Make Sense of Data. Peter Flach

Mapa IV - Innovation Management/Gestão da Inovação

4.4.1.1. Designação da unidade curricular:
Innovation Management/Gestão da Inovação

4.4.1.1. Title of curricular unit:
Innovation Management

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
ANTÓNIO MARINHO DIAS TORRES NETO/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Innovation (definition, types, sources)
• Intrapreneurship (innovation management in established companies)
• Innovation management system (strategy, engine, enablers)
B. Subject-Specific Skills
• Planning and implementation of innovation programmes in established companies
• Idea generation (ideation, experimentation)
• Innovation implementation (portfolio management, go-to-market)
C. General Skills
• Analytical thinking
• Presentation skills
• Group dynamics and teamwork

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
Innovation Fundamentals
• Innovation definition
• Business model innovation
• Disruptive innovation
• Blue ocean innovation
• Intrapreneurship
• Innovation management system
Innovation Strategy
• Strategic agenda
• Innovation types
• Innovation sources
• Intellectual property
Innovation Engine
• Innovation approaches
• Ideation and experimentation
• Portfolio Management
• Go-to-market
Innovation Enablers
• Processes and tools

• Talent and culture
• Organisation and governance
• Metrics and incentives
Innovation Trends
• Digitalisation
• Cycle shortening
• Affordability
• Sustainability

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Innovation is currently at the top of the strategic agenda for almost any company. Established companies invest substantial resources in developing innovation programmes aiming to maintain and expand their competitive advantages whilst preventing disruption by new entrants. In a business environment of ever-accelerating change, a boost in competitive advantage requires breakthrough in addition to incremental innovation. Breakthrough innovation is usually thought of as the domain of startups and entrepreneurs. However, a few established companies have managed to successfully deploy in a corporate environment innovation approaches normally linked to startups. This is the domain of intrapreneurs (internal entrepreneurs). This course aims to provide students with a broad understanding of this domain and, more concretely, with the tools and knowhow to plan and implement innovation programmes in established companies.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
This course is delivered through a three-pronged approach: (1) theory: concepts and frameworks on innovation and intrapreneurship provide a shared basis for a structured understanding of the topic; (2) case studies: group reports, presentations and class discussion of relevant case studies and other examples enable a more concrete view of the topic; and (3) group project: development and presentation of an innovation programme for an established company chosen by each group enable a hands-on approach to the topic.
ASSESSMENT
A. Individual Assignments
• Final exam 40%
• Class participation 10%
B. Group Assignments
• Group Project 40%
• Case-Study Report 10%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
This course is delivered through a three-pronged approach: (1) theory: concepts and frameworks on innovation and intrapreneurship provide a shared basis for a structured understanding of the topic; (2) case studies: group reports, presentations and class discussion of relevant case studies and other examples enable a more concrete view of the topic; and (3) group project: development and presentation of an innovation programme for an established company chosen by each group enable a hands-on approach to the topic.

4.4.9. Bibliografia de consulta/existência obrigatória:
Case Studies
• Alphabet eyes new frontiers. Harvard 2018 (9-717-418)
• Intuit: Turbo Tax PersonalPro. Harvard 2016 (9-816-048)
• Healthymagination at GE Healthcare Systems. Harvard 2012 (9-512-039)
• The Walt Disney Studios. Harvard 2016 (9-516-105)
B. Notes and Articles
• Christensen, Clayton; Raynor, Michael; and McDonald, Rory (2015). What is disruptive innovation? HBR (R1512B).
• Pisano, Gary (2015). You need an innovation strategy. HBR (R1506B).
• Christensen, Clayton; Hall, Taddy; Dillon, Karen; and Duncan, David (2016). Know your customers' job to be done. HBR (R1609D).
• Downes, Larry and Nunes, Paul (2018). Finding your company's second act. HBR (R1801G).
• Parmar, Rashik; Mackenzie, Ian; Cohn, David; and Gann, David (2014). The new patterns of innovation. HBR (R1401G).
• Adner, Ron and Kapoor, Rahul (2016). Right tech, wrong time. HBR (R1611C).

C. Useful book
• Ries, Eric (2017). The startup way.

Mapa IV - Social Media and Online Behavior/Redes Sociais e Comportamento Online

4.4.1.1. Designação da unidade curricular:
Social Media and Online Behavior/Redes Sociais e Comportamento Online

4.4.1.1. Title of curricular unit:
Social Media and Online Behavior

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
MARIA JOANA PATRÍCIO GONÇALVES DE SÁ/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and understanding
• Understand the online data paradigm and the type of data available;
• Understand risks and pitfalls, from both statistical and ethical perspectives;
• Understand the path from data to knowledge.
B. Subject specific skills
• Become comfortable with different types of online data sources and preparing data for analysis;
• Understand how the scientific method is fundamental in data analysis;
• Develop analytical and statistical tools (natural language processing, network analysis, temporal analysis);
• Understand trends and possible causal relationships;
• Develop knowledge of R and Python;
• Understand how online activity offers a window into the human mind (and why we should be both scared and excited).
C. General skills
• Develop critical thinking;
• Develop quantitative thinking;
• Develop responsibility and awareness.

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

This course is incremental, with the knowledge of one week being required to move to the next week. Ethics will be discussed throughout. It will be hands-on and cover the basics of social network analytics.
1. Social Data.
1.1. From online activity to individuals (Google and Wikipedia searches)
1.2. From individuals to networks (Twitter, Facebook, et al)
1.3. From networks to societies (World Bank, OECD, etc)
2. Social Data Analytics
2.1. From speech to text (Natural Language Processing, PoS);
2.2. From emotions to text (Sentiment Analysis, Emoticons),
2.3. From text to ideas (Topic modelling);
2.4. From ideas to viruses (Network analysis)
3. Insights and applications.
3.1. From data to knowledge (Factorization, visualization);
3.2. From present to future (Trends, recommender systems);
3.3 From future to present (Biases and risks).

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

This course aims at creating a broader understanding of the power of analysing social networks and online behaviour. It will cover basics in webpage scraping, data curation, natural language processing, sentiment analysis, and temporal orientation.
The course specifically aims at:
1) Understanding the risks of social data analysis;
2) Providing analytical and statistical tools to extract and analyse online data;
3) Developing tools for text mining and sentiment analysis;
4) Understanding timeseries, trends, causation, and correlation;
5) Improving critical thinking and challenging students to discuss how the online future should look like.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

This course will be very hands-on, using a learn-by-doing framework.
Classes have 2 hours duration, with each week covering a different tool. We will move from extracting data and curating it to learning how to identify patterns and trends; therefore, students are expected to attend all classes. As in most real-world setting, students are expected to work in groups. In the beginning of the course, students and faculty will choose a real-world problem or question (can be just a curiosity) per working group, and these problems will guide the learning process. The tools and the pitfalls discussed will be necessary to reach completion and, by the end of the course, the students are expected to have a practical solution to the selected problem(s).
ASSESSMENT
The final grade in the SMOB course considers:
- Productive Class Participation (20%)
- Paper (40%)
- Paper Presentation and Discussion (40%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

This course will be very hands-on, using a learn-by-doing framework.
Attendance is compulsory.
Students are expected to present solutions to real world problems, applying the tools developed in the course. These solutions should be presented as a short research paper or as a case-study paper, to be discussed at the end of the course.
This is a course at the intersection of theory and practice.
Classes have 2 hours duration, with each week covering a different tool. We will move from extracting data and curating it to learning how to identify patterns and trends; therefore, students are expected to attend all classes. As in most real-world setting, students are expected to work in groups. In the beginning of the course, students and faculty will choose a real-world problem or question (can be just a curiosity) per working group, and these problems will guide the learning process.

The tools and the pitfalls discussed will be necessary to reach completion and, by the end of the course, the students are expected to have a practical solution to the selected problem(s).

4.4.9. Bibliografia de consulta/existência obrigatória:

This is a course at the intersection of theory and practice and there will be no required textbook. A reference textbook is Russell's Mining the Social Web, from O'Reilly, but it will not be followed in class. State of the art papers will be given as required reading. General references in Python and R programming, Statistical Analysis, and Web Scrapping can be suggested.

Mapa IV - Data-Driven Decision Making/Dados em processos de Tomada de Decisão

4.4.1.1. Designação da unidade curricular:

Data-Driven Decision Making/Dados em processos de Tomada de Decisão

4.4.1.1. Title of curricular unit:

Data-Driven Decision Making

4.4.1.2. Sigla da área científica em que se insere:

MQ

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:

23

4.4.1.6. ECTS:

3,5

4.4.1.7. Observações:

Opção condicionada

4.4.1.7. Observations:

Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):

MARIA JOANA PATRÍCIO GONÇALVES DE SÁ/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:

N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):

N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):

A. Knowledge and understanding
• Understand the big data paradigm and the type of data available;
• Understand risks and pitfalls, from both statistical and ethical perspectives;
• Understand the path from data to knowledge.
B. Subject specific skills
• Become comfortable with different types of data sources and preparing data for analysis;
• Understand how the scientific method is fundamental in data analysis;
• Develop analytical and statistical tools (experimental design, regressions, discrete choice models, factor analysis, cluster analysis)
• Develop knowledge of R and Python;
• Become conformable with critical paper reading.

C. General skills
• Develop critical thinking;
• Develop quantitative thinking;
• Develop responsibility and awareness.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
In each week we will focus on specific problems in decision-making, from different contexts, and present new analytical tools to tackle them.
1. Data Analytics.
1.1. What is data?
1.2. What is useful data?
1.3. How to turn data into knowledge?
1.4 How to turn knowledge into decisions?
1.5. What can we learn from natural experiments?
2. Decision-Making in Human and AI contexts.
2.1. What do we know about mistakes and biases in decision-making?
2.2 What do we know about overcoming them? How can data help?
2.3. What are the implications to societies and organizations?
2.4. How do human and artificial intelligences differ?
3. Problems and Pitfalls.
3.1. How to lie with statistics?
3.2. Is there such a thing as neutrality?
3.3 Is there such a thing as algorithm neutrality?
3.4 What might the future look like?

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
In each week we will focus on specific problems in decision-making, from different contexts, and present new analytical tools to tackle them.
The course specifically aims at:
1) Providing analytical and statistical tools to improve the decision-making process;
2) Offering insight and intuition as to which tools to use in each situation;
3) Improving the decision-making process, at both for profit and not for profit levels;
4) Challenging students to think beyond a limited scope and understand the impact of their decisions at a societal level.

Relation between syllabus and intended learning outcomes:
Knowledge and understanding - Syllabus 1; 3; 1.3
Subject specific skills - Syllabus 1; 2/3; 2.2; 3; 2.4
General skills - In class (transversal)

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
This course will be very hands-on, using a learn-by-doing framework.
Classes have 2 hours duration, with each week driven by a specific problem. The first class of the week will present current theory and knowledge, deconstructing a specific problem; during the second class, students will try different hands-on tools to tackle it. At the end of each class, students will be faced with a new problem, to be discussed in the following week. This offers the course a very stimulating and fast paced environment, permanently linking theory to applications and back again.

ASSESSMENT
Attendance to at least 10 classes is compulsory.
The final grade in course considers:
- Individual and Group Problem Sets (50% - 10% each)
- Final Exam (25%)
- Oral Discussion (25%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

This course will be very hands-on, using a learn-by-doing framework.

Attendance to at least 10 classes is compulsory.

At the end of each week, students are expected to solve a problem (5 in total), either computationally or as a case write-up. Creativity is encouraged, but proper code annotation and a useful solution are fundamental. Students are always free to work together and discuss the problems with each other, but the write-ups must be individual. The final assessment will have two steps: 1) a single problem, that the students are expected to solve using the learned tools and 2) an oral defence of their solution.

4.4.9. Bibliografia de consulta/existência obrigatória:

This is a course at the intersection of theory and practice and there will be no required textbook. State of the art papers will be offered to prepare each class. General references in Python and R programming, Statistical Analysis, and Data for Management can be suggested.

Mapa IV - Project Scoping

4.4.1.1. Designação da unidade curricular:

Project Scoping

4.4.1.1. Title of curricular unit:

Project Scoping

4.4.1.2. Sigla da área científica em que se insere:

G

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:

23

4.4.1.6. ECTS:

3,5

4.4.1.7. Observações:

Opção condicionada

4.4.1.7. Observations:

Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):

LEID ZEJNILOVIC/23h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:

N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):

N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):

A. Knowledge and Understanding
• What constitutes a data science / business analytics project.
• The steps of project scoping and a methodology to build the impactful projects.
• How to develop a project charter, and set-up a framework for a successful data science project with an impact.
B. Subject-Specific Skills
Students will have hands-on experience using action-driven framework to identify, evaluate, and build actionable, value-adding data science projects.
C. General Skills
Student will be able to describe and apply project scoping concepts, steps, tools and concets that are used in today's data science projects. They will also identify critical issues associated with the data science projects, including data access and quality, legal constrains, and the impact evaluation.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
• What is a project?
1. Organization Strategy and Project Selection
2. Organizational structure and Culture
3. Project Lifecycle
• Action-driven project scoping framework
• Project Charter
1. Scope statement
2. Work breakdown structure
3. Data agreement
4. Risk Management
5. Deliverables
6. Schedules and Gantt Charts
7. Monitoring and evaluation
• Project Management: operations management perspective
1. Network Diagram, critical path, Cost management

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Students will learn essential concepts and apply the methodologies acquired to real-life project examples in data science and business analytics.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Students are required to bring own laptops for in-class exercises and quizzes. This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes in social sciences.
ASSESSMENT
The overall evaluation of performance consists of 4 parts
• Individual Assignments: 50%
• Class Participation: 10%
• Project: 40%
o Proposal and Proposal Presentation: 10%
o Final Report and Presentation: 30%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
This course serves to introduce student to the craft of data science project scoping, and to prepare students for selecting a work project that they will be developing during the Master program. It is designed for social science students who are interested in learning how to identify an actionable project, assess the project's feasibility, and develop the required framework that ensures that the data science / business analytics project is implemented and impactful.

This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes in social sciences.

4.4.9. Bibliografia de consulta/existência obrigatória:
A series of specific text and video materials will be available for discussion in class.

Mapa IV - Social Science and Philosophy/Ciência Social e Filosofia

4.4.1.1. Designação da unidade curricular:
Social Science and Philosophy/Ciência Social e Filosofia

4.4.1.1. Title of curricular unit:
Social Science and Philosophy

4.4.1.2. Sigla da área científica em que se insere:
A

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada.

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
AVELINO MIGUEL DA MOTA DE PINA E CUNHA/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and understanding
• Understand the different worldviews that constrain the way managers make decisions, individually and collectively, in a globalized tech-driven and culturally fragmented world.
• Understand how social sciences and philosophy develop methodologies that are used by managers, to support their decision-making processes, enhance critical thinking, advanced reasoning for problem solving, and creativity.
• Understand the advantages and limitations of data-driven perspectives and augmented cognition to support the managers' decision-making.
B. Subject specific skills
• Develop critical analytical skills to understand and compare different logics used by managers in their decision-making processes.
• Develop foresight and creativity to imagine possible futures and disruptive business models
C. General skills
• Discuss the value of management and managers for the future of humankind.
• Develop empathy, responsibility, self-awareness and a growth mindset.

4.4.5. Conteúdos programáticos:

N/A

4.4.5. Syllabus:

1. Humankind and its creations
1.1. Objective, subjective, and intersubjective realities
1.2. The evolution of humankind and their collective organizing experiences
1.3. Human and artificial minds
2. Humanism vs Human-centric systems
2.1. Ontology of the social
2.2. Epistemology of social realities
2.3. How do different perspectives/worldviews influence managers in their decision-making processes? Biases, limitations, ambiguity
3. The learning process of humans and machines
3.1. Single and double loop learning systems
3.2. How can humans teach machines and how do machines learn without humans?
3.3. Communication
4. Social sciences methodologies and philosophical insights
4.1. Inductive and deductive, quantitative and qualitative methodologies
4.2. Data collection, analysis, insights.
4.3. Writing reports with scientific support to be used in decision-making processes.
5. Ethics and morality in decision-making processes.
6. Past and future.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

This course aims to discuss the key questions that humankind has been asking since the beginning of times, to promote a critical approach of future managers to the way data is produced and used in their decision-making processes. The focus will be in the way meaning-driven systems (cognitive and social) develop curiosity and reasoning, framing problems and establishing the limits of their own reality through their interpretations (which includes the way their digitally enhanced minds relate to their physical bodies).

Aiming to connect theories from social sciences and valuable insights from philosophy with practical application, the course explores knowledge and frameworks developed in diverse fields (history, psychology, sociology, anthropology, philosophy, literature and arts) and the specific content of each class is determined by a Big Question that is part of the day-to-day challenges of managers when making decisions.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

This course uses an approach to learning that relies on a constructive discussion between students, Guests, and Professors.

Classes have a three hours' duration, and each is driven by a Big Question. Students are invited to prepare the session in advance and actively engage with Guests and Professors during the second hour of the class, discussing and even provoking them with ideas that they develop through self-reflection and group debates.

ASSESSMENT
The final grade considers:
- Discussion during classes (10%)
- Individual and Group Reports (40%)
- Final Exam (50%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

The course aims specifically at:
1. Fostering knowledge on the evolution of management practices, and on how they are influenced by the cognitive processes and social contexts in which managers and machines grow together;

2. Confronting powerful academic learning acquired by social sciences such as history, psychology, sociology, anthropology, political science, literature and arts, with real experiences of managers when coping with data in their decision-making processes;
3. Expanding the horizon of possibilities with philosophical insights, to increase creativity in problem scoping and decision-making processes, and develop critical perspectives on the biases of managers and contingencies of management practices around the world and through the centuries;
4. Developing important skills for future managers, such as empathy, social skills, and contextual intelligence;
5. Challenging students to generate new and innovative ideas which can advance decision-making practices used by managers.

This course uses an approach to learning that relies on a constructive discussion between students, Guests, and Professors.

Classes have a three hours' duration, and each is driven by a Big Question. Students are invited to prepare the session in advance and actively engage with Guests and Professors during the second hour of the class, discussing and even provoking them with ideas that they develop through self-reflection and group debates.
At the end of each class, students reflect on the topic and summarize their reflections in a written individual essay, which should show an understanding and critical reflection on the Big Question under analysis and a creative way to apply conclusions in decision-making processes. This means that most of the study and preparation for the essays happens outside the class, through self-development anchored in a mentoring relationship created with the Professors.

At the end of each session students deliver a small essay (max. 2 pages) with a critical view on the big question, management problem and/or best practices presented during the class, including:
1. An introduction on the topic, main challenges and practices used by managers today;
2. A critical analysis of the big question and its impact of the management practices in the world;
3. A reflection on how the question will still apply (or not) in the future;
4. Recommendations on how to overcome challenges and limitations of current framework used by managers;
5. Personal reflection on how to prepare, as a future manager, for similar challenges and opportunities.

4.4.9. Bibliografia de consulta/existência obrigatória:

This is a course in the intersection of theory and practice. Students should reference their prior courses' bibliography in their essays and complement it with practical insights that may be acquired through a regular attention to what managers read, such as The Economist, Harvard Business Review, Financial Times, McKinsey Quarterly, Deloitte University Press, among others.

Clegg, Kornberger, & Pitsis (2016). Managing and Organizations: An introduction to theory and practice. 4th edition. Sage.
Tsoukas & Chia (2011). Philosophy and Organization Theory (Research in the Sociology of Organizations). Emerald Publishing.
Harari (2018). 21 lessons for the 21st century.

Heidrick and Struggles & Saïd Business School (2015). The CEO Report: Embracing the paradoxes of leadership and the Power of Doubt. Available for free on http://www.heidrick.com/Knowledge-Center/Publication/The-CEO-Report.

Mapa IV - Advanced Data Analysis/Análise Avançada de Dados

4.4.1.1. Designação da unidade curricular:
Advanced Data Analysis/Análise Avançada de Dados

4.4.1.1. Title of curricular unit:
Advanced Data Analysis

4.4.1.2. Sigla da área científica em que se insere:
MQ

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
Nuno Manuel Ribeiro Preguiça/11.5h

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
Ludwig Krippahl/11.5h

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Knowledge
** Apreciate the challenges, models and use-cases for big data analytics*
** Understand the power and limitations of state of the art big data analytics infrastructures*
** Principles and methods for data cleaning*
** Use methods for dealing with high-dimension data*
** Understand the fundamental concepts and applications of clustering*
Skills:
** Identify the appropriate data analytics steps for addressing a data intensive cenarios*
** Select the tools for executing each data analytics step*
** Solve practical problems with data quality, such as handling missing values, rescaling and format conversions*
Competence
** Use existing data analytics frameworks for expressing data analytics problems*
** Handle high-dimensional data: extract features, reduce dimensionality, examine correlations and produce visual representations of data in high dimensions*
** Select and apply appropriate clustering algorithms for different clustering goals, select the appropriate parameters and validate the clustering*

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1. Introduction to Big Data
a. Challenges
b. Data analytics models
c. Applicability
2. Processing frameworks
a. First generation: e.g. map-reduce
b. Second-generation: e.g. Spark
c. Infrastructures for Big Data Analytics – e.g. Azure Big Data and Advanced Analytics Solutions
3. Data cleaning
a. Pre-processing
b. Rescaling
c. Data quality
4. Dealing with multidimensional data
a. Descriptive statistics and visualization
b. Feature selection and extraction for dimensionality reduction
5. Clustering
a. Clustering types
b. Distance measures
c. Clustering validation

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The first topic introduces the challenges and use cases for Big Data analytics.

The second topic presents the current processing frameworks, discussing their power, applicability and limitations. It additionally introduces the basics of programming using Spark R. This framework will be used for putting in practice the technique introduced in the following topics.

The third topic introduces techniques for data cleaning, providing an understanding of the principles and methods for this task, and how to use them for addressing concrete data quality problems.

The fourth topic addresses the problems of dealing with multidimensional data, introducing a set of techniques for addressing such problems.

The last topic focus on clustering, providing the knowledge of the fundamental concepts, methods and applications of clustering and teaching how to apply such methods for addressing different types of problems.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Lectures will cover the fundamental topics covered in the course, allowing time for questions and discussion on how to address concrete data analytics problems.

Tutorial classes will address relevant real-world data analysis problems based on the techniques covered bt the lectures.

The evaluation of this curricular unit will consist of a hand-on assignment and a written test, each contributing for 50% of the final grade.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The different techniques covered in this unit will be framed within practical problems to illustrate their application. The tutorials and assignments will help consolidate knowledge and skills in the selection and application of different algorithms to real examples. Especial attention will be given to data understanding aspects of data analysis.

4.4.9. Bibliografia de consulta/existência obrigatória:
Moreira, João, Andre Carvalho, and Tomás Horvath. A General Introduction to Data Analytics. John Wiley & Sons, 2018.

Mapa IV - Data Ecosystems and Governance in Organizations/Ecosistema de Dados e Governança nas Organizações

4.4.1.1. Designação da unidade curricular:
Data Ecosystems and Governance in Organizations/Ecosistema de Dados e Governança nas Organizações

4.4.1.1. Title of curricular unit:
Data Ecosystems and Governance in Organizations

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Obrigatória

4.4.1.7. Observations:
Mandatory

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
Paul van der Boor/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
• Explain what is a data-driven organization, where technology is in the core.
• Identify the challenges of moving from Corporate Governance towards Organizations as Open Platforms and Data Ecosystems.
• Reflect and act upon the understanding of ethics, privacy, transparency, and biases inherent to organizations as platforms and data ecosystems.
B. Subject-Specific Skills
• Lead the transformation of organizations into data ecosystems
• Intervene in an organization to align Strategy, Processes, Organization, and Systems
• Develop a continuous improvement environment
• Design organizational mechanisms to maintain the values of ethics, fairness, transparency, and avoid frauds and sabotage.
C. General Skills
• Work in teams in a collaborative and constructive manner
• Articulate thoughts about a topic in a written form
• Present a coherent story, and constructively participate in exchange of opinions

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1:
▪ Systems for data management
▪ Setting up internal systems to collect, manage, store, govern and protect data that is relevant for the management of the organization;
2: Aligning Business Strategy, Processes, Organization, and Systems
3: Organizational culture for data-driven organizations embedded in data ecosystems
4: From Corporate Governance to Data ecosystems; Governance and Performance Measurement
5: Organizations as Continuous improvement environments with multiple decision contributors
6: Fraud and Sabotage, Ethics, Privacy, Transparency, and Bias: organizational perspective

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Students will learn essential data duration concepts and apply practical machine learning techniques to manage data effectively for business analytics problems.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):

Students are required to read class assignments before the class and be ready to engage in an interactive discussion. This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes in social sciences.
ASSESSMENT
The overall evaluation of performance consists of 5 parts
• Final exam: 50%
• One group project: 40%
• Class Participation: 10%

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

This course offers theoretical fundaments for understanding organizations where data and technology are in the core, and practical examples of what are the consequences of moving technology from periphery to the core of organizations.

Students will learn how the concepts of what we know as corporate governance are challenged, and the what does it mean to have organizations as open platforms and continuous improvement environments.

The fundamental change in how we set-up organizations is also accompanied with the necessity to reflect about the organizational culture, leadership, and ethics.

Students are required to read class assignments before the class and be ready to engage in an interactive discussion. This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes in social sciences.

4.4.9. Bibliografia de consulta/existência obrigatória:

There is no specific bibliography. However, depending on the topic, students are expected to use data management, Corporate Governance and Data ecosystems information in working papers or research papers, newspapers, international institutions reports.

Mapa IV - Advanced Programming for Data Science/Programação Avançada e Data Science

4.4.1.1. Designação da unidade curricular:

Advanced Programming for Data Science/Programação Avançada e Data Science

4.4.1.1. Title of curricular unit:

Advanced Programming for Data Science

4.4.1.2. Sigla da área científica em que se insere:

I

4.4.1.3. Duração:

Trimestral

4.4.1.4. Horas de trabalho:

98

4.4.1.5. Horas de contacto:

23

4.4.1.6. ECTS:

3,5

4.4.1.7. Observações:

Opção condicionada.

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
CARLOS AUGUSTO ISAAC PILÓ VIEGAS DAMÁSIO/11.5H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
LUDWIG KRIPPAHL/11,5H

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Knowledge:
- Organization and documentation of software packages
- Techniques for automated software testing
- Analysis of spatial-temporal data
- Interactive visualization methods and available libraries
- Big data processing with scripting languages
- Frameworks for high performance learning tasks

Skills:
- Create and deploy Python packages and libraries
- Create automated testing modules to improve code development and maintenance
- Process spatial-temporal data with Python libraries
- Create visual representations for data such as time series and raster data
- Use Python libraries for processing big data in distributed file systems.
- Train, optimize and test deep networks with TensorFlowTM.

Competences:
- Documentation of software
- Autonomous use of third-party libraries
- Guarantee reproducibility of data science experiments

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
The course is organized in 6 modules, covering the topics presented below. Python is the selected language because of its flexibility, ease of integration with other software components, and robustness to process and analyse big data.

1 – Course overview. Introduction to python packages: architecture, documentation and deployment. Unit tests in Python with the unittest framework.
2 - Advanced processing of temporal data with Pandas and Prophet
3 - Advanced processing of spatial data with GeoPandas, rasterio and PySAL to respectively perform vector and raster calculations, and analyse spatial data.
4 - Data visualization with Bokeh and Basemap libraries
5 - Processing big data with PySpark
6 - Introduction to Tensorflow and deep neural networks

Remark: due to the fast evolving nature of the area, the concrete libraries to use on each edition of the course may be adapted to reflect the good practices.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
The main objective is to cover advanced programming techniques necessary for more demanding data analysis problems. Due to the different aspects of programming and data analysis, the syllabus is structured so that each topic is properly mastered before moving on the subsequent topics. For example, proper design of packages and unit testing are fundamental to solve more complex programming tasks and thus are covered at the beginning, whereas deep learning is presented at the end after students are familiarized with other data analysis techniques.

The syllabus instantiates the knowledge outcomes in the several modules, in a direct way, where lectures will provide the theoretical context of the issues, and the use of the Python language and libraries in teaching examples and programming tasks will contribute to give students the appropriate skills and competences. Code, examples, datasets and experiments will be distributed with Sphinx generated documentation or jupyter notebooks.

4.4.7. Metodologias de ensino (avaliação incluída):

N/A

4.4.7. Teaching methodologies (including students' assessment):

Lectures will cover the fundamental topics of the course, including some time for questions and discussion, and will be illustrated with demos that students may replicate afterwards on their own. Each of the 6 modules will have the duration of 2 weeks, where the first week is dedicated to present the concepts, while the 2nd week is to be used by students to solve programming tasks. Real datasets will be provided to students, and will be used systematically through out the several modules.

Students are expected to practice and solve the proposed exercises autonomously, but part of the contact time will be devoted to discuss any practical problems they were unable to solve on their own.

The evaluation of this curricular unit will consist of three practical assignments, each contributing to 25% of the final grade, and the remaining 25% will be assessed in a final exam. It is planned to have a practical assignment combining the following pairs of modules: 1 and 2; 3 and 4; 5 and 6.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:

N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:

All knowledge outcomes will be assessed in the final exam of the course, that will take place after all the practical assignments have been delivered and discussed with the students. This helps students to master the knowledge outcomes with real hands-on experience. The short programming tasks help to achieve the skills in the outcomes.

The first topics of package design and deployment and unit testing are fundamental for sound implementation of code that goes beyond simple scripts, and are to be used in all practical assignments as well as good documentation practices. Thus, the principles and practices covered in this first topic will then be applied consistently throughout the course.

The topic of advanced processing of temporal data directly addresses one of the objectives of this C.U., namely to provide the student with the understanding and skills necessary for dealing with spatial-temporal data, and due to its wide application is assessed in the first practical assignment.

The analysis of spatial data has a strong visualization component, and for this reason they are grouped together in the 2nd practical assignment. Basic data visualization, such as plotting charts with Matplotlib, is often insufficient for understanding such data sets. An introduction to other libraries, such as Basemap for geographical data or Bokeh for building interactive charts is necessary to help the students overcome these limitations, one of the objectives of this course.

Finally, the last practical assignment is devoted to the processing and analysis of big-data, for which Spark and Tensorflow are major players.

Spark is a widely used framework for handling big data, with a Python interface in the PySpark library. A working knowledge of this library is important for the analysis of big data, as well as an understanding of specific programming techniques for processing data stored in distributed systems.

Tensorflow is a powerful deep learning library, built to take advantage of parallel computing with GPU, and some familiarity with deep learning can be very useful for predictive and descriptive modelling with large data sets. The increasing success of deep learning in many different tasks makes it an important topic to cover in a C.U. of advanced methods for data science.

4.4.9. Bibliografia de consulta/existência obrigatória:

The main bibliography is the existing documentation of the libraries and frameworks, accompanied by selected tutorials to be followed by students. Slides will complement the readings. If needed, papers describing more recent techniques will be selected by the team.

Mapa IV - Web and Cloud Computing

4.4.1.1. Designação da unidade curricular:

Web and Cloud Computing

4.4.1.1. Title of curricular unit:
Web and Cloud Computing

4.4.1.2. Sigla da área científica em que se insere:
I

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada.

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
NUNO MANUEL RIBEIRO PREGUIÇA/11,5H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
JOÃO RICARDO VIEGAS DA COSTA SECO/11,5H

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
Knowledge:
- The foundational concepts of cloud base systems.
- Architectures of cloud based applications: SOA and microservice architectures.
- Methods for data storage and data retrieval.
- Alternative mechanisms for data processing.
- Security challenges posed by Web-based data-centric applications.

Skills:
- Define a service based application for data-intensive processing.
- Define a RESTful interface to allow the interoperability among systems.
- Select the appropriate storage for a given application.
- Design a data-intensive application that integrates data storage and processing.

Competences:
- Use state-of-the-art frameworks to create a data-intensive application.
- Use cloud services to deploy web-based applications.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:

1 - Introduction to cloud based systems and applications
1.1 Challenges and opportunities

1.2 Cloud models: IaaS, PaaS, AaaS
1.3 Application architectures: 3-tier model, SOA

2 - Development of Service and Web based applications
2.1 Definition of RESTful APIs (OPENAPI)
2.2 Implementation of Web Services using Fast Development Frameworks

3 - Data Abstraction Layer
3.1 Data manipulation techniques
3.2 Storage Technologies: SQL, key-value store, HDFS
3.3 Performance: Caching, Replication

4 - Data Processing
4.1 Processing platforms: Spark
4.2 Data dissemination: Kafka
4.3 Integration of data processing in the application lifecycle

5 - Client applications
5.1 User-centric development
5.2 Browser Frameworks: Angular or React
5.2 Data visualization frameworks: D3

6 - Data Security Models
6.1 Early concepts on software security (Authentication/Authorization/OAuth)
6.2 Data Privacy
6.3 Main security threats and attacks

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
Topic 1 introduces the foundational concepts and architectures of cloud based applications, presenting an overview of the type of problems and techniques that will be covered in this unit.

Topic 2 introduces web services and RESTful services, the de-facto standard for data distribution on the Internet, discussing how to design service based application with RESTful interfaces.

Topic 3 discusses data storage alternatives, their strengths and limitations for addressing different application types.

Topic 4 focus on data processing, including data processing frameworks, event dissemination systems and their integration in a data-intensive application that includes storage and processing.

Topic 5 addresses the development of client applications focusing on mainstream technologies, especially addressing libraries for data visualization.

Topic 6 addresses the general concepts and techniques to build trustworthy applications.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
Lectures will cover the fundamental topics of the subject matter, include some time for questions and discussion of the subject matter.

Lab classes will be dedicated to exercises and guidance in the practical assignments, focusing on selected topics.

The course assessment will be divided into classroom quizzes (20%), one exam (40%), and a project (40%)

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
The different techniques covered in this unit will be framed within practical problems to illustrate their application. The tutorials and assignments will help consolidate knowledge and skills in the selection and application of different algorithms to real examples. Especial attention will be given to data understanding aspects of data analysis.

4.4.9. Bibliografia de consulta/existência obrigatória:

Main reference:
Designing Data Intensive Application. Martin Kleppmann. O'Reilly. 2017

Additional references:
Building RESTful Python Web Services. Gaston Hillar. Packt Publishing. 2016

The Definitive Guide to Django. Web Development Done Right. Adrian Holovaty and Jacob Kaplan-Moss, 2009

Mapa IV - Data Science in Industry Verticals/Data Science e Mercados Verticais

4.4.1.1. Designação da unidade curricular:
Data Science in Industry Verticals/Data Science e Mercados Verticais

4.4.1.1. Title of curricular unit:
Data Science in Industry Verticals

4.4.1.2. Sigla da área científica em que se insere:
G

4.4.1.3. Duração:
Trimestral

4.4.1.4. Horas de trabalho:
98

4.4.1.5. Horas de contacto:
23

4.4.1.6. ECTS:
3,5

4.4.1.7. Observações:
Opção condicionada.

4.4.1.7. Observations:
Elective

4.4.2. Docente responsável e respetiva carga letiva na Unidade Curricular (preencher o nome completo):
PEDRO GABRIEL FONSECA/23H

4.4.3. Outros docentes e respetivas cargas letivas na unidade curricular:
N/A

4.4.4. Objetivos de aprendizagem (conhecimentos, aptidões e competências a desenvolver pelos estudantes):
N/A

4.4.4. Intended learning outcomes (knowledge, skills and competences to be developed by the students):
A. Knowledge and Understanding
Identify the drivers of specialization of data science for industry verticals.
B. Subject-Specific Skills
Students will have hands-on experience using action-driven framework to identify, evaluate, and build actionable, value-adding data science projects.
C. General Skills
Student will be able to describe and apply project scoping concepts, steps, tools and concets that are used in today's data science projects. They will also identify critical issues associated with the data science projects, including data access and quality, legal constrains, and the impact evaluation.

4.4.5. Conteúdos programáticos:
N/A

4.4.5. Syllabus:
1: Industry-agnostic data science, and industry specialization •

2: Data Science in industry verticals; example, finance
2.1. Legal foundation for working with data – GDPR
2.2. Introduction to Credit and Risk
2.3. Introduction to PD modelling
2.4. Fraud-detection
2.5. Anti-discrimination legislation for financial services provision
2.6. Basel Model Validation
2.7. Introduction to LGD modelling
2.8. Introduction to capital requirements
2.9. Making a career in a fin-tech company.

4.4.6. Demonstração da coerência dos conteúdos programáticos com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.6. Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:
This course has two parts. The first part serves to lay the common ground for data science across disciplines, and to discuss the reasons for a specialization within industries. The second part of the course aims to allow students to explore how data science develops within an industry vertical. Via industry-expert-led parallel tracks, student engage in an exploration of the theoretical and practical differentiation of data science in fin-tech, retail, supply-chain, insurance, health-care, travel, etc. The course aims to provide in-depth understanding of the data-driven management and the role of data-science in different industries through interactions with experienced practitioners.
The parallel tracks will be organized under the condition that a track has at least 8 registered students.

4.4.7. Metodologias de ensino (avaliação incluída):
N/A

4.4.7. Teaching methodologies (including students' assessment):
This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes and an exploration of data science in industry verticals.
ASSESSMENT
The overall evaluation of performance consists of 4 parts
• Individual Assignments: 50%
• Class Participation: 10%
• Project: 40%
o Proposal and Proposal Presentation: 10%
o Final Report and Presentation: 30%

Assignments:
• One Project Scoping assignment
• Short response to previous week's lectures before class every week
• There will be no final exam. Instead, each project team will have a report due and an oral presentation

Project: Students will form groups (3-4 students each) and work on a project they'll propose after week 3. We will provide a set of project ideas to choose from but feel free to bring your own as well.

4.4.8. Demonstração da coerência das metodologias de ensino com os objetivos de aprendizagem da unidade curricular:
N/A

4.4.8. Evidence of the coherence between the teaching methodologies and the intended learning outcomes:
This course adopts learning-by-doing culture that allows students to learn, develop, and test the knowledge acquired on the set of problems custom-designed for educational purposes and an exploration of data science in industry verticals. This way students will have hands-on experience, can identify the drivers of specialization of data science for industry verticals and by the project and assignments instructor evaluate their ability describe and apply project scoping concepts, steps, tools and concepts that are used in today's data science projects.

4.4.9. Bibliografia de consulta/existência obrigatória:
A series of specific text and video materials will be available for discussion in class.

4.5. Metodologias de ensino e aprendizagem

4.5.1. Adequação das metodologias de ensino e aprendizagem aos objetivos de aprendizagem (conhecimentos, aptidões e competências) definidos para o ciclo de estudos:

O programa, pelos seus objetivos de aprendizagem, exige a adoção de metodologias de ensino e aprendizagem que combinem a exposição em sala de aula, teórico-práticas, bem como o envolvimento desde o início em projetos reais com empresas/organizações em diversas áreas da sociedade e da economia. Trata-se, por isso, duma experiência prática multidisciplinar, com resolução de problemas do mundo real. Esta experiência exige uma interação frequente com membros especializados do corpo docente e dos centros de conhecimento.

4.5.1. Evidence of the teaching and learning methodologies coherence with the intended learning outcomes of the study programme:

Considering its learning objectives, the program demands the adoption of teaching methodologies that combine classroom lectures (theory and practice), as well as immersion in real projects with companies/organizations in diverse areas of society and the economy, from day one. It is therefore a multidisciplinary hands-on experience, with real-world problem-solving. This experience requires high-frequency interactions with specialized members of the faculty and knowledge centers.

4.5.2. Forma de verificação de que a carga média de trabalho que será necessária aos estudantes corresponde ao estimado em ECTS:

Para cálculo dos créditos ECTS das unidades curriculares foi utilizado como indicador a equiparação de 1 unidade ECTS a 28 horas de trabalho do estudante. O esforço do estudante nas várias componentes de atividade de cada unidade curricular será continuamente aferido e quando necessário reajustado de acordo com o Regulamento de Aplicação do Sistema de Créditos Curriculares aos Ciclos de Estudo e Cursos da Nova SBE, bem como através de consulta aos docentes, Conselho Científico e Conselho Pedagógico.
Na presente proposta foi analisada a creditação das UC, tendo sido preocupação equilibrar o esforço do estudante entre os vários semestres do curso.

4.5.2. Means to verify that the required students' average workload corresponds the estimated in ECTS.:

To calculate the number of ECTS for each course, the equivalent of 28 hours of student work for each ECTS unit was used. The students' effort in each course's different components will be continuously assessed and readjusted, if needed, according Nova SBE's Regulamento de Aplicação do Sistema de Créditos Curriculares aos Ciclos de Estudo e Cursos, as well as through consultation to faculty members, Scientific Council and Pedagogical Council.
In this proposal, the number of ECTS per course was analyzed considering the balance of the students' efforts during the three semesters.

4.5.3. Formas de garantia de que a avaliação da aprendizagem dos estudantes será feita em função dos objetivos de aprendizagem da unidade curricular:

Esta avaliação, para cada Unidade Curricular, será feita através de:
• Participação dos estudantes no Conselho Pedagógico e no Conselho de Faculdade;
• Avaliação das Unidades Curriculares pelos alunos, que também podem apresentar propostas de melhoria;
• Inquérito de satisfação anual aos alunos de todos os programas da faculdade;
• Realização do "Teaching Day", que reúne os professores da faculdade, para troca de impressões e comunicação de assuntos pedagógicos como regras de funcionamento, avaliação, organização e melhorias das metodologias de ensino;
• Avaliação feita pelo Course Quality and Assurance of Learning (CQAL) Framework todos os três anos, para o par Professor-Disciplina, por um revisor anónimo da área e analisada pelo Presidente do Conselho Pedagógico e Responsável dos programas pre-experiência, sendo discutidas e acordadas, sempre que necessário, as melhorias a introduzir.

4.5.3. Means of ensuring that the students assessment methodologies are adequate to the intended learning outcomes:

For each course, this evaluation occurs through:
• Students' participation in the Pedagogical Council and the Faculty Council;
• Course evaluation by students, who may also suggest improvement proposals;
• Satisfaction survey to all students of all programs of Nova SBE;
• 'Teaching Day', an event that takes place every year with all faculty members, for communication about pedagogical issues such as rules and procedures, assessment, course organization and teaching methodologies improvements;
• Evaluation through the Course Quality and Assurance of Learning (CQAL) Framework, every three years, for each pair Professor-Course, by an anonymous reviewer in the same area, analyzed by the president of the pedagogical council and the head of the pre-experience studies, course improvements being discussed and agreed upon, whenever needed.

4.5.4. Metodologias de ensino previstas com vista a facilitar a participação dos estudantes em atividades científicas (quando aplicável):

Os alunos poderão participar em atividades científicas, numa base voluntária, nomeadamente durante o semestre dedicado ao Trabalho de Projecto. Em particular, estas atividades podem estar associadas ao Data Lab / Venture Lab /

Nova Finance Center / NOVAFRICA / Nova Healthcare Initiative / Center for Digital Business / Center for Social Impact and Leadership.

4.5.4. Teaching methodologies that promote the participation of students in scientific activities (as applicable):

Students will be able to participate in scientific activities carried out by faculty members, on a volunteer basis, namely during the semester dedicated to the Work Project. In particular, these activities may be associated with the Data Lab / Venture Lab / Nova Finance Center / NOVAFRICA / Nova Healthcare Initiative / Center for Digital Business / Center for Social Impact and Leadership.

4.6. Fundamentação do número total de créditos ECTS do ciclo de estudos

4.6.1. Fundamentação do número total de créditos ECTS e da duração do ciclo de estudos, com base no determinado nos artigos 8.º ou 9.º (1.º ciclo), 18.º (2.º ciclo), 19.º (mestrado integrado) e 31.º (3.º ciclo) do DL n.º 74/2006, de 24 de março:

De acordo com o Artigo 18.º do Decreto-Lei no 74/2006, e tratando-se de um programa de estudos de 2º ciclo, foi definida uma duração mínima de 3 semestres curriculares e de 90-120 ECTS para a obtenção do grau de Mestre. À unidade curricular tese/dissertação/trabalho projeto é atribuído um total de 30 ECTS.

4.6.1. Justification of the total number of ECTS credits and of the duration of the study programme, based on articles 8 or 9 (1st cycle), 18 (2nd cycle), 19 (integrated master) and 31 (3rd cycle) of DL no. 74/2006, republished by DL no. 63/2016, of September 13th:

According to Artigo 18.º of Decreto-Lei no 74/2006, and being a 2nd cycle program, a minimum duration of three curricular semesters, and 90-120 ECTS was approved to grant the Master degree, The thesis/work project will have a total of 30 ECTS.

4.6.2. Forma como os docentes foram consultados sobre a metodologia de cálculo do número de créditos ECTS das unidades curriculares:

O esforço do estudante nas várias componentes de atividade de cada unidade curricular do curso de Mestrado em Análise Avançada de Dados para Gestão que em alguns casos resultam de adaptação de UC existentes, será continuamente aferido e reajustado pelos docentes sob a coordenação do Conselho Científico, de forma informada pelos processos de avaliação das disciplinas pelos alunos, e pelo inquérito anual de satisfação.
Estes inquéritos periódicos auscultam os estudantes sobre o número de horas que consomem nas várias atividades, servindo de suporte ao ajuste de créditos ECTS. Durante o processo de elaboração das fichas das UC incluídas nesta proposta, os docentes estiveram novamente ativamente envolvidos e auscultados sobre o método de cálculo das unidades ECTS, tendo também sido ouvidos os estudantes em Conselho Pedagógico.

4.6.2. Process used to consult the teaching staff about the methodology for calculating the number of ECTS credits of the curricular units:

The student's effort in the different components of each course in the Masters in Data Analytics for Management, which in some cases coincide with existing courses in other Masters programs, will be continuously assessed and readjusted by faculty members, under the coordination and approval of the Scientific Council and informed by the student course evaluation and the annual student satisfaction survey.
These periodic surveys ask students for the number of hours spent in different activities and support the ECTS adjustments. When elaborating the syllabi for the courses included in this proposal, professors were heard and actively involved on the ECTS definition, the students having also been heard and consulted in the Pedagogical Council.

4.7. Observações

4.7. Observações:

N/A

4.7. Observations:

N/A

5. Corpo Docente

5.1. Docente(s) responsável(eis) pela coordenação da implementação do ciclo de estudos.

5.1. Docente(s) responsável(eis) pela coordenação da implementação do ciclo de estudos.

Professora Doutora Rita Maria Ferreira Duarte de Campos e Cunha

5.3 Equipa docente do ciclo de estudos (preenchimento automático)

5.3. Equipa docente do ciclo de estudos / Study programme's teaching staff

Nome / Name	Categoria / Category	Grau / Degree	Especialista / Specialist	Área científica / Scientific Area	Regime de tempo / Employment regime	Informação/ Information
Steffen Heinz Hoernig	Professor Associado ou equivalente	Doutor		Economics	100	Ficha submetida
Patrícia Xufre Gonçalves da Silva Casqueiro	Professor Auxiliar ou equivalente	Doutor		Estatística e Investigação Operacional	100	Ficha submetida
Carlos Daniel Rodrigues de Assunção Santos	Professor Auxiliar convidado ou equivalente	Doutor		Economics	100	Ficha submetida
Afonso Fuzeta da Ponte da Cunha de Eça	Professor Auxiliar convidado ou equivalente	Mestre		Finance	90	Ficha submetida
Paulo Manuel Marques Rodrigues	Professor Catedrático convidado ou equivalente	Doutor		Econometrics	90	Ficha submetida
Milton Jorge Correia de Sousa	Professor Associado convidado ou equivalente	Doutor		Management	100	Ficha submetida
Elisabete Margarida Figueiredo Cardoso	Professor Auxiliar convidado ou equivalente	Licenciado		Economia	90	Ficha submetida
José Luís Mexia Fraústo Crespo de Carvalho	Professor Catedrático ou equivalente	Doutor		Management	100	Ficha submetida
Manuel Pedro da Cruz Baganha	Professor Associado convidado ou equivalente	Doutor		Ciências de Decisão	50	Ficha submetida
Youtha Kelly Cuypers	Professor Auxiliar convidado ou equivalente	Doutor		Organization & Strategy	70	Ficha submetida
Luís Miguel Tavares de Almeida Costa	Professor Catedrático ou equivalente	Doutor		Management	100	Ficha submetida
João Manuel Gonçalves Amaro de Matos	Professor Associado ou equivalente	Doutor		Física	100	Ficha submetida
Gonçalo Marçal de Sommer Ribeiro	Assistente convidado ou equivalente	Mestre		Finance	50	Ficha submetida
Alexander Fraser Coutts	Professor Auxiliar convidado ou equivalente	Doutor		Economics	70	Ficha submetida
Nadim Fouad Bou-Habib	Professor Auxiliar convidado ou equivalente	Mestre		Economics	25	Ficha submetida
Pedro Miguel Miranda Neves	Professor Associado ou equivalente	Doutor		Organizational Behavior	100	Ficha submetida
Catherine Thérése Laurence Jouven da Silveira	Professor Auxiliar convidado ou equivalente	Doutor		Marketing	100	Ficha submetida
Jorge Manuel Naves Velosa	Professor Auxiliar convidado ou equivalente	Mestre		Gestão	90	Ficha submetida
Emanuel Rogério Sabino Gomes	Professor Associado ou equivalente	Doutor		Strategic Management	100	Ficha submetida
Daniel Abel Monteiro Palhares Traça	Professor Catedrático ou equivalente	Doutor		Economia	100	Ficha submetida
Filipa Vieira da Silva Castanheira	Professor Associado ou equivalente	Doutor		Social Psychology	100	Ficha submetida
José Manuel Albuquerque Tavares	Professor Catedrático ou equivalente	Doutor		Economia	100	Ficha submetida
Pedro Luís de Oliveira Martins Pita Barros	Professor Catedrático ou equivalente	Doutor		Economia	100	Ficha submetida
Maria Clara Reynaud Campos Trocado Costa Duarte	Professor Associado ou equivalente	Doutor		Economia	100	Ficha submetida
Maria Rosário Campos Silva André Gouveia	Professor Auxiliar convidado ou	Mestre		Management	90	Ficha submetida

	equivalente				
Maria Joana Patrício Gonçalves de Sá	Professor Auxiliar convidado ou equivalente	Doutor	Systems Biology	100	Ficha submetida
António Marinho Dias Torres Neto	Professor Auxiliar convidado ou equivalente	Doutor	Business Administration	100	Ficha submetida
Leid Zejnilovic	Professor Auxiliar convidado ou equivalente	Doutor	Technological Change & Entrepreneurship	100	Ficha submetida
Miguel Baptista Coelho Alves Martins	Professor Auxiliar ou equivalente	Mestre	Economia	100	Ficha submetida
Francisco Pizarro Beleza Rodrigues Queiró	Professor Associado ou equivalente	Doutor	Business Economics	100	Ficha submetida
João Nuno Lopes de Castro	Professor Associado convidado ou equivalente	Doutor	Engineering Systems	100	Ficha submetida
David Bernardo Ferreira Santo	Professor Auxiliar convidado ou equivalente	Mestre	Business Administration	25	Ficha submetida
Qiwei Han	Professor Auxiliar convidado ou equivalente	Doutor	Engineering and Public Policy	50	Ficha submetida
Avelino Miguel da Mota de Pina e Cunha	Professor Catedrático ou equivalente	Doutor	Marketing	100	Ficha submetida
Rita Maria Ferreira Duarte de Campos e Cunha	Professor Associado ou equivalente	Doutor	Management	100	Ficha submetida
Sónia Cristina Duarte Oliveira	Professor Auxiliar convidado ou equivalente	Doutor	Gestão	50	Ficha submetida
João Pedro dos Santos Sousa Pereira	Professor Auxiliar ou equivalente	Doutor	Finance	100	Ficha submetida
Nuno Manuel Ribeiro Preguiça	Professor Associado ou equivalente	Doutor	Informática	100	Ficha submetida
Ludwig Krippahl	Professor Auxiliar ou equivalente	Doutor	Bioquímica estrutural	100	Ficha submetida
Rayid Ghani	Professor Auxiliar convidado ou equivalente	Mestre	Machine Learning	25	Ficha submetida
Paul van der Boor	Professor Auxiliar convidado ou equivalente	Doutor	Engineering and Public Policy	25	Ficha submetida
Fernando Pedro Reino da Silva Birra	Professor Auxiliar ou equivalente	Doutor	Informática	100	Ficha submetida
Carlos Augusto Isaac Piló Viegas Damásio	Professor Associado ou equivalente	Doutor	Informática	100	Ficha submetida
João Ricardo Viegas da Costa Seco	Professor Auxiliar ou equivalente	Doutor	Informática	100	Ficha submetida
Pedro Gabriel Fonseca	Professor Auxiliar convidado ou equivalente	Mestre	Creating and Managing Entrepreneurial Ventures/Entrepreneurship	25	Ficha submetida
João Carlos Gomes Moura Pires	Professor Auxiliar ou equivalente	Doutor	Informática	100	Ficha submetida
				3915	

<sem resposta>

5.4. Dados quantitativos relativos à equipa docente do ciclo de estudos.

5.4.1. Total de docentes do ciclo de estudos (nº e ETI)

5.4.1.1. Número total de docentes.

46

5.4.1.2. Número total de ETI.

39.15

5.4.2. Corpo docente próprio - Docentes do ciclo de estudos em tempo integral

5.4.2. Corpo docente próprio – docentes do ciclo de estudos em tempo integral.* / "Full time teaching staff" – number of teaching staff with a full time link to the institution.*

Corpo docente próprio / Full time teaching staff	Nº / No.	Percentagem / Percentage
Nº de docentes do ciclo de estudos em tempo integral na instituição / No. of teaching staff with a full time link to the institution:	30	76.628352490421

5.4.3. Corpo docente academicamente qualificado – docentes do ciclo de estudos com o grau de doutor

5.4.3. Corpo docente academicamente qualificado – docentes do ciclo de estudos com o grau de doutor* / "Academically qualified teaching staff" – staff holding a PhD*

Corpo docente academicamente qualificado / Academically qualified teaching staff	ETI / FTE	Percentagem / Percentage
Docentes do ciclo de estudos com o grau de doutor (ETI) / Teaching staff holding a PhD (FTE):	33.05	84.418901660281

5.4.4. Corpo docente do ciclo de estudos especializado

5.4.4. Corpo docente do ciclo de estudos especializado / "Specialised teaching staff" of the study programme.

Corpo docente especializado / Specialized teaching staff	ETI / FTE	Percentagem* / Percentage*	
Docentes do ciclo de estudos com o grau de doutor especializados nas áreas fundamentais do ciclo de estudos (ETI) / Teaching staff holding a PhD and specialised in the fundamental areas of the study programme	33.05	84.418901660281	39.15
Especialistas, não doutorados, de reconhecida experiência e competência profissional nas áreas fundamentais do ciclo de estudos (ETI) / Specialists not holding a PhD, with well recognised experience and professional capacity in the fundamental areas of the study programme	6.1	15.581098339719	39.15

5.4.5. Estabilidade e dinâmica de formação do corpo docente.

5.4.5. Estabilidade e dinâmica de formação do corpo docente. / Stability and development dynamics of the teaching staff

Estabilidade e dinâmica de formação / Stability and tranning dynamics	ETI / FTE	Percentagem* / Percentage*	
Docentes do ciclo de estudos em tempo integral com uma ligação à instituição por um período superior a três anos / Teaching staff of the study programme with a full time link to the institution for over 3 years	30	76.628352490421	39.15
Docentes do ciclo de estudos inscritos em programas de doutoramento há mais de um ano (ETI) / FTE number of teaching staff registered in PhD programmes for over one year	0.9	2.2988505747126	39.15

Pergunta 5.5. e 5.6.

5.5. Procedimento de avaliação do desempenho do pessoal docente e medidas conducentes à sua permanente atualização e desenvolvimento profissional.

A Nova SBE tem um processo para avaliar as atividades e o contributo de todos os docentes para a faculdade. No início do ano, todos recebem um documento do Conselho Científico (Report Sheet). Num prazo de três semanas todos terão de indicar como contribuem para a escola nos seguintes termos: i) Investigação (publicações, trabalho em progresso, trabalho editorial, participação em conferências académicas); ii) Educação (número de disciplinas lecionadas e teses orientadas); iii) Trabalho administrativo; iv) Gestão académica e v) Extensão universitária, comunicação científica e serviço à comunidade.

O Conselho Científico analisa os dados recebidos e comunica feedback. A informação fica disponível na Secretaria do Conselho Científico. É prestado aconselhamento aos professores em início de carreira sobre a sua progressão, de acordo com a missão da faculdade. Os resultados dos inquéritos de satisfação dos alunos constituem um critério de avaliação nas decisões de promoção.

5.5. Procedures for the assessment of the teaching staff performance and measures for their permanent updating and professional development.

Nova SBE has a process to evaluate the activities and contribution to the school of all faculty members. At the start of the year, all faculty members receive a 'report sheet' from the Scientific Council. In a 3 week period, all professors indicate how they contributed to the school in the following: i) research (publications, work in progress, editorial work and participation in academic conferences); ii) Education (number of courses taught and supervised thesis); iii) Administrative tasks; iv) Academic management and v) University extension, science communication and services to the community.
The Scientific Council analyses the received information and gives feedback. Information is kept at the Scientific Council Secretariat. Advice is provided to young faculty on how they are progressing towards the school's mission. Students' satisfaction surveys are a criterion in the faculty evaluation towards career progression.

5.6. Observações:

Em 2018 foi publicado o Regulamento da Avaliação do Desempenho e Alteração do Posicionamento Remuneratório da Nova SBE (https://dre.pt/application/conteudo/115844332).

5.6. Observations:

In 2018 Nova SBE published the Regulamento da Avaliação do Desempenho e Alteração do Posicionamento Remuneratório (https://dre.pt/application/conteudo/115844332).

6. Pessoal Não Docente

6.1. Número e regime de tempo do pessoal não-docente afeto à lecionação do ciclo de estudos.

Participam em atividades de suporte à gestão do ciclo de estudos o seguinte pessoal não docente:
1. Apoio à coordenação e disseminação do curso, apoio aos docentes, atendimento dos estudantes
Director Admissões
Director Experiência do Aluno
Director Serviços Académicos e de Planeamento e Estatísticas
Dois Gestores de Programa
Coordenador da Equipa de Mestrados
Director Serviço de Carreiras
Gabinete de Apoio ao Estudante
Coordenador de Mobilidade Internacional
2.Apoio à gestão da rede de computadores e da manutenção de informação na web, incl atividades de ligação com Dep. Sistemas de Informação
Director de Departamento de Sistemas de Informação
Responsável pelo Departamento de Tecnologia Educacional
3. Apoio aos Serv de Impressão e Manutenção das Infra-estruturas
Director de Manutenção

6.1. Number and work regime of the non-academic staff allocated to the study programme.

1. Coordination and program marketing support, faculty support and student support
Admissions Director
Student Affairs Director
Academic Services and Planning and Statistics Director
Two Program Manager
Masters Team Manager
Director Career Service
Student Development Office
Manager International Mobility
2. Management of computer networks and maintenance of information on the web, including liaison activities with the IT Department, which also provides human resources as needed
Chief Information Officer
Head of Department of Educational Technology
3. Support to printing facilities and infra-structures maintenance
Maintenance Director

6.2. Qualificação do pessoal não docente de apoio à lecionação do ciclo de estudos.

Todo o pessoal não docente afeto à lecionação do ciclo de estudos possui qualificações de nível 6 (Licenciatura) ou superior.

6.2. Qualification of the non-academic staff supporting the study programme.

All non-teaching staff allocated to the study program has an educational background equal or above Licenciatura (level 6).

6.3. Procedimento de avaliação do pessoal não-docente e medidas conducentes à sua permanente atualização e desenvolvimento profissional.

O modelo de avaliação de desempenho, em articulação com o SIADAP, visa promover o desenvolvimento individual de cada colaborador através da análise das seguintes dimensões: definição de objetivos organizacionais e individuais (estabelecidos entre a chefia e o colaborador, na Entrevista); avaliação de competências (feita pela chefia, poderá ser ou não acompanhada de autoavaliação) e necessidades de formação (identificação de carências, relativas a conhecimentos e capacidades técnicas que interferem com o desempenho de cada colaborador).
É um processo contínuo de interação entre a chefia e o colaborador e deve ser encarado como uma ferramenta de gestão para o plano anual de formação, mobilidade interna, identificação e retenção de talento. O instrumento utilizado para o processo é a Ficha de Avaliação tendo como resultado uma avaliação quantitativa (1 a 5) e qualitativa (Desempenho relevante, adequado ou inadequado).

6.3. Assessment procedures of the non-academic staff and measures for its permanent updating and personal development

The performance appraisal model, articulated with SIADAP, aims at promoting individual development of each employee through the analysis of the following dimensions: goal setting, organizational and individual (established between supervisor and employee, in the interview); competencies evaluation (by the supervisor, but may have self-evaluation) and training needs (identification of gaps concerning knowledge and technical skills that impact on performance).
It is a continuous process of interaction between the supervisor and the employee, and should be considered as a managerial tool for the annual training plan, internal mobility, identification and retention of talent. An Appraisal Form is used, with a quantitative evaluation (1 to 5) and a qualitative one (Relevant, adequate or inadequate performance).

7. Instalações e equipamentos

7.1. Instalações físicas afetas e/ou utilizadas pelo ciclo de estudos (espaços letivos, bibliotecas, laboratórios, salas de computadores, etc.):

O campus de Carcavelos, inaugurado, oficialmente, em 29.09.2018, tem uma área total de 91.000m2.
Interior - Instalações físicas:
Career Services (80,4m2), Alumni (380m2), Student Central - Serviços Académicos (534m2);
30 salas de aula;
6 computer labs;
25 anfiteatros (2.125 lugares sentados);
4 auditórios (888 ls);
83 gabinetes individuais e partilhados de professores (total de 214 ls);
2 salas apoio a assistentes (40 lug);
16 salas de reunião (4/8m2);
Espaço de estudo 24 horas (80,5m2 e 220 lug);
6 Áreas de restauração (5.032m2);
38 instalações sanitárias;
Espaço co-work (120m2);
Biblioteca (1.780m2 e 315 ls);
4 espaços comerciais (banco com sistema ATM, clínica saúde e bem-estar, reprografia e seguradora);
Ginásio (1.830m2);
Espaços multiusos (5.340m2);
Residência para estudantes (116 quartos);
8 copas.
No exterior - espaços verdes e de diversão&lazer (+/- 17.000m2).
Todo o campus é acessível a pessoas com mobilidade reduzida.

7.1. Facilities used by the study programme (lecturing spaces, libraries, laboratories, computer rooms, ...):

The Carcavelos campus, officially, inaugurated on 29.09.2018, has a total area of 91,000m2.
Indoor Areas - Facilities:
Career Services (80.4 m2), Alumni Services (380 m2), Student Central - Academic Services (534 m2);
30 classrooms;
6 computer labs;
25 amphitheaters (2.125 seats);
4 auditoriums (888 seats);
83 single and shared faculty offices (total of 214 seats);
2 shared TA offices (40 seats);
16 meeting rooms (4 / 8 m2);
24 hr study hall (80.5 m2 and 220 seats);
6 catering facilities (5.032 m2);

38 toilet facilities;
Cowork facility (120 m2);
Library (1.780 m2 and 315 st);
4 amenities (bank, ATM, health and wellness clinic, print-shop, insurance company);
Gymnasium (1.830 m2);
Multipurpose facility (5.340 m2);
Hall of residence (116 rooms);
8 break areas.
Exterior areas- there are green areas as well as entertainment & leisure spaces (+/- 17.000m2).
The entire campus is accessible to people with reduced mobility.

7.2. Principais equipamentos e materiais afetos e/ou utilizados pelo ciclo de estudos (equipamentos didáticos e científicos, materiais e TIC):

O novo Campus de Carcavelos está dotado com as mais modernas tecnologias de informação e comunicação ao serviço de alunos, docentes, staff e comunidade.
Relação de equipamentos:
Salas de aulas, auditórios e anfiteatros dotadas de equipamento de som e projeção;
6 computer labs, cada com 23 computadores (total 138 computadores);
Espaço de estudo 24 h com 5 terminais Bloomberg;
13 equipamentos de impressão e digitalização com serviço de ligação em rede;
Serviço de rede wireless com cobertura de todo o campus;
Biblioteca com: 10 terminais Bloomberg, 22 computadores e 15 portáteis;
12 vending machines (bebidas quentes e frias e snacks);
12 microondas;
4 frigoríficos;
9 elevadores;
1 parque estacionamento de bicicletas (50 lugares);
1 estação de bike renting ("BICAS") (20 biclicletas);
1 parque estacionamento automóvel (200 lug);
1 túnel/galeria de acesso ao exterior do campus.

7.2. Main equipment or materials used by the study programme (didactic and scientific equipment, materials, and ICTs):

The new Carcavelos campus is endowed with the most modern information and communication technologies for service of students, teachers, staff and community.
Equipment:
All classrooms, auditoriums and amphitheaters have sound and projection equipment;
6 computer labs, each with 23 computers (total 138 computers);
24 hr study hall with 5 Bloomberg terminals;
13 copier/printer/scanner machines with network connection service;
Wireless network service covering the entire campus;
10 Bloomberg terminals, 22 computers and 15 laptops;
12 vending machines (hot and cold drinks and snacks);
12 microwaves;
4 refrigerators;
9 elevators;
1 bicycle park (parking 50 bicycles);
1 bike renting station "BICAS" (20 bicycles);
1 car park (200 places);
1 tunneled passageway to waterfront.

8. Atividades de investigação e desenvolvimento e/ou de formação avançada e desenvolvimento profissional de alto nível.

8.1. Centro(s) de investigação, na área do ciclo de estudos, em que os docentes desenvolvem a sua atividade científica

8.1. Mapa VI Centro(s) de investigação, na área do ciclo de estudos, em que os docentes desenvolvem a sua atividade científica / Research centre(s) in the area of the study programme where teaching staff develops its scientific activity

Centro de Investigação / Research Centre	Classificação (FCT) / Classification FCT	IES / HEI	N.º de docentes do CE integrados / Number of study programme teaching staff integrated	Observações / Observations
Nova School of Business and Economics Research Unit	Excelente (2014)	UNL/Nova SBE	61	

Pergunta 8.2. a 8.4.

8.2. Mapa-resumo de publicações científicas do corpo docente do ciclo de estudos, em revistas de circulação internacional com revisão por pares, livros ou capítulos de livro, relevantes para o ciclo de estudos, nos últimos 5 anos.

http://www.a3es.pt/si/iportal.php/cv/scientific-publication/formId/33063031-852e-fbee-7eda-5c40c22a6b84

8.3. Mapa-resumo de atividades de desenvolvimento de natureza profissional de alto nível (atividades de desenvolvimento tecnológico, prestação de serviços ou formação avançada) ou estudos artísticos, relevantes para o ciclo de estudos:

http://www.a3es.pt/si/iportal.php/cv/high-level-activities/formId/33063031-852e-fbee-7eda-5c40c22a6b84

8.4. Lista dos principais projetos e/ou parcerias nacionais e internacionais em que se integram as atividades científicas, tecnológicas, culturais e artísticas desenvolvidas na área do ciclo de estudos.

Há 101 projectos levados a cabo pelo Centro de Investigação, em diferentes áreas: i) Estudos Ambientais – 3; ii) Finanças – 4; iii) Saúde – 9; iv) Estudos Africanos – 18; v) Outros – 67, variando entre gestão de recursos humanos a educação, entre União Europeia a inovação e empreendedorismo.
Em 2017, os projectos lançados foram:
Local Governance: Taxation, Accountability, Performance
Non-Bank Financing, Business Cycles and Financial Crises
Heavy-Tails and Robust Estimation in Economics and Finance
International Monetary Fund Interventions in Portugal
Integrating Immigrants as a Tool for Broad Development: Experimental Evidence for
Portugal and Cape Verde
Belief Systems and Health Behaviors in Guinea Bissau
Land Use Changes at The Urban-Rural Interface: A Portuguese Case Study
Human Capital spillovers.

Foram estabelecidas parcerias, nomeadamente no âmbito dos centros de conhecimento.

O Nova Finance Center estabeleceu parcerias com a indústria para disseminação do conhecimento aplicado produzido pelos docentes e alunos na área de Finanças.

O Nova Healthcare tem parcerias com as seguintes instituições: European Observatory for Health System and Policies; ACSS – Administração Central do Sistema de Saúde ; BI | USF – Gestão do Conhecimento em Saúde ; Netfarma - Portal dos Profissionais do Setor Farmacêutico; Nova Economics Club – Health Systems.

O Nova Center for Environmental Economics tem parcerias com os Arctic University of Norway, Norwegian University of Life Sciences, Akvaplan Niva, Universitetet I Stavanger, Vista Analyse, Cesam, Gulbenkian Foundation.

A iniciativa Data Science for Social Good tem parcerias com diversas organizações, desde câmaras municipais a agências governamentais ou empresas, e junta data scientists e decisores de todo o mundo para trabalharem juntos durante três meses para propor soluções para alguns dos mais importantes desafios societais do sec. XXI, tais como o desemprego de longo-prazo, vacinação, resposta a incidents e turismo sustentável.

8.4. List of main projects and/or national and international partnerships underpinning the scientific, technologic, cultural and artistic activities developed in the area of the study programme.

There are 101 projects carried out by the research unit, in different areas: i) Environmental studies – 3; ii) Finance – 4; iii) Healthcare – 9; iv) Africa studies – 18; v) Other – 67, ranging from human resource management to education, from the European Union to innovation and entrepreneurship.
In 2017, the projects launched were:
Local Governance: Taxation, Accountability, Performance
Non-Bank Financing, Business Cycles and Financial Crises
Heavy-Tails and Robust Estimation in Economics and Finance
International Monetary Fund Interventions in Portugal
Integrating Immigrants as a Tool for Broad Development: Experimental Evidence for
Portugal and Cape Verde
Belief Systems and Health Behaviors in Guinea Bissau
Land Use Changes at The Urban-Rural Interface: A Portuguese Case Study
Human capital spillovers.

Partnerships are also established namely by the knowledge centers.

Nova Finance Center established partnerships with the industry to disseminate the applied knowledge produced by our faculty and students in the Finance area.

Nova Healthcare initiative has partenrships with the following organizations: European Observatory for Health System and Policies; ACSS – Administração Central do Sistema de Saúde ; BI | USF – Gestão do Conhecimento em Saúde ; Netfarma - Portal dos Profissionais do Setor Farmacêutico; Nova Economics Club – Health Systems.

The Nova Center for Environmental Economics has partnerships with The Arctic University of Norway, Norwegian University of Life Sciences, Akvaplan Niva, Universitetet I Stavanger, Vista Analyse, Cesam, Gulbenkian Foundation.

The Data Science for Social Good initiative partners with several organizations, from municipalities to governmental agencies or companies, and brings together data scientists and policy and decision-makers from all over the world to work together for three months to solve some of the most pressing societal challenges of the 21st century such as long-term unemployment, vaccination, incident response, and sustainable tourism.

9. Enquadramento na rede de formação nacional da área (ensino superior público)

9.1. Avaliação da empregabilidade dos graduados por ciclo de estudos similares com base em dados oficiais:

Não havendo indicadores oficiais disponíveis sobre a empregabilidade deste tipo de graduados, utiliza-se a informação fornecida pela Agenda Digital para a Europa (CE, 2014) que prevê a criação de 16 milhões de novos postos de trabalho que exigem competências no domínio das tecnologias de informação e comunicações, bem como da Estratégia e Plano de Ação para a Empregabilidade Digital (CPED, 2015), que estima a existência de 15.000 vagas nesta área em Portugal até 2020. De acordo com este relatório, as organizações públicas e privadas, necessitam destas competências para enfrentar a concorrência, para reforçar as capacidades técnicas, tecnológicas e de gestão, facilitando deste modo a inserção no mercado global. A gradual transferência para o ciberespaço do marketing, das transações, das relações com clientes e da assistência técnica a utilizadores, para citar alguns exemplos, por parte das empresas é crucial para a sua competitividade quer nos mercados internos quer no mercado global.

9.1. Evaluation of the employability of graduates by similar study programmes, based on official data:

In the absence of official indicators about the employability of this type of graduates, we use the information of the Digital Agenda for Europe 2020 (EC, 2014), which predicts the creation of 16 million new jobs that demand competences in ITC, as well as the Strategy and Action Plan for Digital Employability (CPED, 2015), which estimates the existence of 15.000 vacancies in this area in Portugal until 2020. According to this report, public and private organizations will require these competencies to face their competition and to reinforce their technical, technological and managerial skills, thus facilitating the integration in the global market. The gradual transfer to the cyberspace of marketing, transactions, customer relationship, user technical assistance, to cite some examples, by companies is critical for their competitiveness in the internal markets and the global market.

9.2. Avaliação da capacidade de atrair estudantes baseada nos dados de acesso (DGES):

A procura de formação avançada (segundo ciclo) nas áreas de Gestão e Tecnologia de Informação sugere que o número de candidaturas bem qualificadas para este programa seja elevado. Nos últimos três anos, o programa de mestrado em Gestão da Nova SBE tem tido uma taxa de aceitação de candidatos de 20%, sendo que crescentemente os alunos procuram unidades curriculares nas áreas de fronteira entre tecnologia e gestão. Do mesmo modo, a procura pelas áreas de tecnologia de informação e análise avançada de dados, noutras instituições, é elevada e crescente.

9.2. Evaluation of the capability to attract students based on access data (DGES):

The demand for advanced education (second cycle) in the areas of Management and Information Technology suggests that this program may have a large number of qualified applicants. In the last three years, the Master's in Management from Nova SBE has had an acceptance rate of applicants of 20%, and increasingly accepted students look for courses in the borderland of technology and management. Similarly, the demand for studies in information technology and data science is high and increasing, in other institutions.

9.3. Lista de eventuais parcerias com outras instituições da região que lecionam ciclos de estudos similares:

N/A

9.3. List of eventual partnerships with other institutions in the region teaching similar study programmes:

N/A

10. Comparação com ciclos de estudos de referência no espaço europeu

10.1. Exemplos de ciclos de estudos existentes em instituições de referência do Espaço Europeu de Ensino Superior com duração e estrutura semelhantes à proposta:

Citam-se quatro instituições de referência de ensino superior, na Europa:
A Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, com o Mestrado em Análise e Engenharia de Big Data, que exige 120 ECTS e duração de 4 semestres;
A Faculdade de Economia do Porto, com o Master in Modeling, Data Analysis and Systems for Decision Support, que exige 120 ECTS e 4 semestres;
A Bocconi University, com o Msc. in Data Science and Business Analytics, com 120 ECTS e 4 semestres;

E a ESSEC Business School, com o Msc. In Data Science and Business Analytics, que pode ser completado em três semestres.

10.1. Examples of study programmes with similar duration and structure offered by reference institutions in the European Higher Education Area:

Four institutions of Higher Education, of reference in Europe, are cited:
The Faculty of Sciences and Technology (FCT-UNL), with the Master in Analysis and Engineering of Big Data, which demands the completion of 120 ECTS in 4 semesters;
The Faculty of Economics of University of Porto, with the Master in Modeling, Data Analysis and Systems for Decision Support, which demands the completion of 120 ECTS in 4 semesters;
Bocconi University, with the Msc. in Data Science and Business Analytics, with 120 ECTS in 4 semesters;
ESSEC Business School, with the Msc. In Data Science and Business Analytics, which may be completed in three semesters.

10.2. Comparação com objetivos de aprendizagem de ciclos de estudos análogos existentes em instituições de referência do Espaço Europeu de Ensino Superior:

O principal objetivo para a oferta destes programas é idêntico – o desenvolvimento de competências no processamento e análise de grandes volumes de dados como suporte às decisões de gestão, através da utilização inteligente da informação, que está no âmago da tomada de decisões nas empresas e outras organizações.
Os pontos de diferenciação do programa proposto prendem-se com o facto de proporcionar i) uma experiência multidisciplinar aplicada, com resolução de problemas reais desde o primeiro dia, ii) uma experiência imersiva com interações semanais com o corpo docente; iii) um ecossistema da Nova SBE, que possui um Data Lab, Venture Lab, bem como Centros de Conhecimento nas áreas Financeira, Africa, Negócio Digital, Saúde, Liderança e Impacto Social e ainda iv) uma comunidade global associada ao Data Science for Social Good, que desenvolve competências para o impacto social.

10.2. Comparison with the intended learning outcomes of similar study programmes offered by reference institutions in the European Higher Education Area:

The main goal for these programs is similar – the development of competencies in the processing and analysis of large volumes of data to support management decisions, through the intelligent use of information that is core to decision making in companies and other organizations.
The differentiation points of the proposed program are in providing: i) a multidisciplinary hands-on experience, with real-world problem-solving from the first day; ii) an immersive experience, with high-frequency interactions with faculty members, every week, iii) the Nova SBE ecosystem, with Data Lab, Venture Lab, as well as knowledge centers in the areas of Finance, Africa, Healthcare, Digital Business and Social Impact and Leadership and iv) a global community associated to Data Science for Social Good, which builds competencies to be impactful right out of the school.

11. Estágios e/ou Formação em Serviço

11.1. e 11.2 Estágios e/ou Formação em Serviço

Mapa VII - Protocolos de Cooperação

Mapa VII - NA

11.1.1. Entidade onde os estudantes completam a sua formação:

NA

11.1.2. Protocolo (PDF, máx. 150kB):

<sem resposta>

11.2. Plano de distribuição dos estudantes

11.2. Plano de distribuição dos estudantes pelos locais de estágio e/ou formação em serviço demonstrando a adequação dos recursos disponíveis.(PDF, máx. 100kB).

<sem resposta>

11.3. Recursos próprios da Instituição para acompanhamento efetivo dos seus estudantes nos estágios e/ou formação em serviço.

11.3. Recursos próprios da Instituição para o acompanhamento efetivo dos seus estudantes nos estágios e/ou formação em serviço:

NA

11.3. Institution's own resources to effectively follow its students during the in-service training periods:

NA

11.4. Orientadores cooperantes

11.4.1. Mecanismos de avaliação e seleção dos orientadores cooperantes de estágio e/ou formação em serviço, negociados entre a instituição de ensino superior e as instituições de estágio e/ou formação em serviço (PDF, máx. 100kB).

11.4.1 Mecanismos de avaliação e seleção dos orientadores cooperantes de estágio e/ou formação em serviço, negociados entre a instituição de ensino superior e as instituições de estágio e/ou formação em serviço (PDF, máx. 100kB).

<sem resposta>

11.4.2. Orientadores cooperantes de estágio e/ou formação em serviço (obrigatório para ciclo de estudos com estágio obrigatório por lei)

11.4.2. Mapa X. Orientadores cooperantes de estágio e/ou formação em serviço (obrigatório para ciclo de estudos com estágio obrigatório por Lei) / External supervisors responsible for following the students' activities (mandatory for study programmes with in-service training mandatory by law)

Nome / Name	Instituição ou estabelecimento a que pertence / Institution	Categoria Profissional / Professional Title	Habilitação Profissional (1)/ Professional qualifications (1)	Nº de anos de serviço / Nº of working years

<sem resposta>

12. Análise SWOT do ciclo de estudos

12.1. Pontos fortes:

• A qualidade do corpo docente associado aos centros de investigação da Nova SBE, tendo os restantes experiência e competência profissional relevante em áreas específicas.
• Enquadramento nos Mestrados da Nova SBE, reconhecidos internacionalmente nos rankings mais relevantes.
• Multidisciplinariedade no contexto da UNL em colaboração estreita com a FCT.
• A comunidade global associada ao Data Science for Social Good.
• Forte ligação com as empresas no âmbito da rede da Nova SBE, que permitirá desenvolver projetos inovadores.

12.1. Strengths:

• The quality of the faculty members associated to the knowledge centers of NOVA SBE, all other having relevant experience and professional competence in specific areas;
• Integration in the Masters programs of NOVA SBE, internationally recognized in the most relevant rankings;
• Multidisciplinarity in the context on UNL, in close cooperation with the Faculty of Science and Technology;
• The global community associated to Data Science and Social Good;
• NOVA SBE's network of close links to the business community, allowing the development of innovative projects

12.2. Pontos fracos:

Sendo o primeiro programa na área da Data Analytics da Nova SBE, com uma inovadora ligação à gestão, implicará um período de aprendizagem para a Nova SBE, que, entretanto, continuará a desenvolver o seu corpo docente nesta área.

12.2. Weaknesses:

Being the first program in the Data Analytics area for Nova SBE, with na innovative link to management, it will certainly entail a learning period for NOVA SBE, which, in the meantime, will keep growing its faculty in this area.

12.3. Oportunidades:

• Formação numa área de relevância crescente, mas com uma oferta escassa no ensino universitário;
• Conteúdos inovadores nas áreas económicas e de gestão, bem como de análise avançada de dados, permitindo aos graduados estabelecer nas organizações o diálogo entre as áreas da gestão e a tecnologia, funcionando como tradutores;
• Resposta às necessidades de recursos humanos, reportadas pelas organizações contemporâneas, a nível global, proporcionando à faculdade a oportunidade de ocupar um lugar relevante na educação de segundo ciclo, em particular no espaço europeu.

12.3. Opportunities:

• Scholarship in an area of increasing relevance but with scarce supply in higher education;
• Innovative contents in the economics and management areas, as well as data analytics, allowing graduates to create, in their employer organizations, the dialogue between management and technology, by working as translators;
• Response to the needs of human resources reported by contemporary organizations, at a global level, providing the school the opportunity to have a relevant place in second cycle education, particularly in Europe.

12.4. Constrangimentos:

A multidisciplinaridade do programa exige que as várias instituições da Universidade mantenham um compromisso de colaboração no desenvolvimento contínuo do programa, bem como da sua estabilidade pedagógica.

12.4. Threats:

The multidisciplinary nature of the program demands different University institutions to keep a commitment to collaborate in the continuing development of the program, as well as its pedagogical stability.

12.5. Conclusões:

O Mestrado em Data Analytics for Management (MDAM) visa o desenvolvimento de sólidas competências técnicas, organizacionais, de liderança, de pensamento crítico e de comunicação, para os futuros gestores e líderes de organizações (públicas ou privadas, empresariais ou sem fins lucrativos) num contexto cada vez mais dependente de algoritmos e sistemas híbridos (homem-máquina) para a tomada de decisão. Está assim focado na formação de tradutores, ou seja pessoas que percebem as organizações e os seus problemas de gestão e que sabem utilizar a tecnologia e os dados para resolver esses problemas.
Contando com uma colaboração com o Departamento de Informática da Faculdade de Ciências e Tecnologia da UNL, o mestrado aqui proposto reúne as competências técnicas e pessoais de gestão com as tecnológicas, sendo esta multidisciplinaridade ajustada à atração de perfis de candidatos com formação de primeiro ciclo em áreas de Ciências, Tecnologia, Engenharia ou Matemática, bem como de Economia, Finanças ou Gestão.
O curriculum proposto é inovador e corresponde às necessidades reportadas pelas organizações a nível nacional e internacional, com um corpo decente especializado e maioritariamente activo em investigação e pertencente ao Centro de Investigação da faculdade com a classificação de Excelente na última avaliação da FC&T.

12.5. Conclusions:

The Master in Data Analytics for Management (MDAM) aims at the development of solid technical, organizational, leadership, critical thinking and communication competencies for future managers and leaders of organizations (public or private, for-profit or not-for-profit) in a context increasingly dependent on algorithms and hybrid (human-machine) systems for decision making. It is therefore focused on the education of translators, i.e., people who understand organizations and the managerial problems they face, and know how to use technology and leverage data to solve them.
Having a collaboration with the Department of Computer Science of the Faculty of Sciences and Technology of UNL, the program proposed here brings together the technical and personal competencies of management with the technological ones. This multidisciplinarity is appropriate to attract applicant profiles with a first cycle educational background in Sciences, Technology, Engineering or Mathematics, but also Economics, Finance or Management.
The proposed curriculum is innovative and corresponds to the needs reported by all types or organizations, at a national or international level, and involves a specialized and research active teaching staff, most of them belonging to the school's Research Unit, which was rated as Excellent in the last FC&T evaluation process.