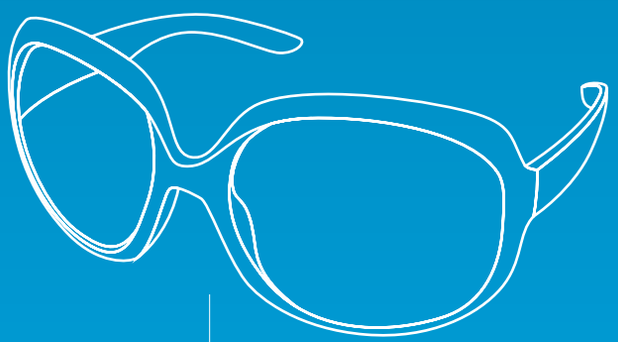
AU SUMMER UNIVERSITY*

*OR 80+ HIGH-LEVEL COURSES IN DENMARK



A PAIR OF SUNGLASSES*

*OR AN OUTDOOR READING SPEED IMPROVER

AARHUS UNIVERSITY

SOLIDUM PETIT IN PROFUNDIS · UNIVERSITAS ARHUSIENSIS

TABLE OF CONTENTS

ECONOMICS AND BUSINESS ECONOMICS

BUSINESS DEVELOPMENT AND TECHNOLOGY

LAW

CULTURE AND SOCIETY

COMMUNICATION AND CULTURE

HEALTH

BIOMEDICINE

IDENTITY AND PRIVACY

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Gert Læssøe Mikkelsen
Date	29/7-16/8

Exam type: Oral exam on set topic
Exam dates: 15-16 August
Academic prerequisites: Bachelor in Computer Science. The course is open for bachelor students, if the course is included in their signed Bachelor´s contract.

Description of qualifications
After the course the participants will have detailed knowledge of technical problems and solutions concerning digital identity and privacy and how to design for privacy. This includes "state of the art" protocols used in the industry today along with emerging technologies with completely new functionalities. The participants will also gain insight into legal and business issues concerning identity and privacy as well as get knowledge of design framework in privacy. The working method of the course will also train the participants to independently seek information, to plan and complete projects, and to communicate professional issues.

At the end of the course the participants must be able to:

- **identify** and **analyze** problems concerning the handling of digital identities.
- **judge** and **compare** technical Solutions for handling of digital identities.
- **describe** and **evaluate** concepts and techniques used in the field.
- **describe** and **evaluate** technical solutions, legal requirements from the national data protection regulations and the EU data protection regulation.
- **describe** and **evaluate** concepts and solutions for designing for privacy.

Where digital service providers, a few years ago, handled users by username/password and a local user database, we have seen significant changes over a few years. It is now possible to use various services for user handling, and delegation of access to data between services is now possible and used more than ever. This trend is supported by a wide range of protocols such as OAuth and OpenID Connect as well as several commercial solutions, including Facebook Connect and in the Danish context NemID. The exchange of personal information in these and other interconnected systems may make it difficult for the users to handle privacy.

Therefore, these changes make it important to have a technical understanding of the security and functionality of the management of digital identities as well as knowledge about how to design for privacy so that users are respected.

Content
The course work is both theoretically and practically concerning privacy and these "state of the art" technologies for managing digital identities. In addition, we take a look at some of the emerging technologies that support security, including privacy in completely new ways. These are cryptographic technologies like anonymous credentials/attribute-based credentials (e.g., Microsoft U-Prove and IBM Identity Mixer). Parallel to these technical changes, major legislative changes, especially from the EU, are taking place with the new data protection regulation as of May 2018. This regulation has implications for all Danish and international companies that manage users and their data on the Internet, and it is important as a technician to have a firm understanding of these implications. Therefore, this course will also address these legal aspects.

WIND POWER SUMMER SCHOOL - IN COOPERATION WITH SIEMENS GAMESA RENEWABLE ENERGY A/S AND VESTAS SYSTEMS A/S

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Name Name
Date	11/8-23/8

Exam type: Written exam, 60 minutes
Academic prerequisites: Applicants must be students or hold a degree (on at least bachelor's level) in: Electrical Energy Technology, Mechanical Engineering, Electrical Power Engineering or equivalent

Description of qualifications
The overall goal with this summer school is to give the students a substantial knowledge of wind turbine technology.

Having attended the course, the participant will be able to:

- Describe the working principle for a wind turbine on both component and system level (if Mechanical background)
- Gain understanding of the multi disciplinary challenges of work with both aerodynamics, structural dynamic systems, control technology and power compoments in a coupled system.
- Understand the basics of the total business case calculation for a complete wind turbine system.
- Describe the main components, analyse the interactions and load transfer between the components. (if Mechanical background)
- Analyse design criteria for the different components due to normal operational dynamic loads and extreme load conditions (if Mechanical or Power background).
- Analyse and describe principles for optimiing the operation of the turbine and the construction in relation to advanced control (if control background).
- Gain experience from teamwork and case related problem solving.
- Gain experience in procedures for professional problem solving in an industrial environment.
- Measure output and input power (if power or control background)
- Understand the operation of an asynchronous machine(if power or control background)
- Understand the operation of a synchronous machine (if power or control background)
- Define the generator load and distribution of the active and reactive power (if power or control background)
- Understand the principles behind the synchronization of generators (if power or control background)
- Understand the principle in controlling the speed of the machine (if power or control background)

- Understand the theoretical background behind the relationships between power, torque, speed and load (if power or control background)

Content

The objective of the course is to give the participants experience with applying the established engineering knowledge to specific wind turbine problems. In relation to this, the participants will learn about analysing advantages, problems and principles in power obtained from wind energy. They will be able to understand wind as an energy source and a dynamic load source for the wind turbine, understand how power and load are transferred through the construction and understand how the individual components interact.

The summer school is carried out in close cooperation with industrial partners who, along with university staff members, contribute with theoretical lectures and input to the case exercise.

INTERNATIONAL CONSTRUCTION LAW

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Dimitar Kondev
Date	22/7-2/8

Exam type: Oral exam
Academic prerequisites: Prior knowledge of construction law is not required.

Description of qualifications
International construction law is an area of law which is gaining increasing popularity. Competition is more international than ever and knowledge in this specialized field of law is required throughout all stages of the construction supply chain.
Participants in large construction projects comprise employers, contractors, sub-contractors, suppliers, architects, engineers, project managers, financial institutions, etc. These participants frequently come from different jurisdictions. In such cases, the use of domestic construction agreements is often inappropriate, and therefore parties often resort to the use of international standard form construction agreements, such as the FIDIC Conditions of Contract and NEC. Such a choice requires a new approach towards the understanding of construction law which is generally confined to the knowledge of local legislation and standard form domestic contracts applicable in the country where the subject is taught. This course in International Construction Law deals with the legal aspects arising out of the implementation of construction projects which have an international element. By completing this course the participants will have an excellent opportunity to gain a thorough understanding of this specialised area of law and its interaction with commerce in a time of globalization.

At the end of the course the student is expected to be able to:
- Explain the legal implications concerning all major stages of construction projects as well as the role of international construction agreements and their application in different legal systems
- Analyse the legal regulation in the FIDIC books, including the 2017 FIDIC editions
- Explain the rights and obligations of the parties
- Conduct and communicate legal analysis in relation to key topics in the field of international construction law
- Explain the dispute resolution procedures in international construction contracts

Content
The course will review the nature of construction agreements as a whole and the specific features that discern them from other types of commercial contracts.

The focus of the course will be on the FIDIC Conditions of Contract which are widely used internationally. The changes in the new 2017 FIDIC editions will also be explained. The FIDIC contracts will be examined from both a civil law and a common-law perspective. Relevant case law will also be quoted. The course will deal with the legal aspects of all stages of implementation of international construction projects.

More particularly, the following topics will be discussed during the course:

- Formation of construction contracts;

- Governing law;

- The role of the Engineer under standard form construction agreements;

- Rights and obligations of the Employer;

- Rights and obligations of the Contractor, incl. design responsibility;

- Sub-contractors;

- Breach of contract, esp. delay and defects;

- Remedies for breach of construction contracts, incl. termination;

- Variations;

- Securities;

- Risk allocation;

- Taking over and Completion;

- Dispute resolution with an emphasis on dispute adjudication and arbitration.

RISK ASSESSMENT OF XENOBIOTICS

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	John Jensen
Date	12/8-23/8

Exam type: 3 hour written exam
Academic prerequisites: A broad knowledge about ecotoxicology would be a benefit, e.g. through the BSc course ecotoxicology at the Department of Bioscience or similar courses.

Description of qualifications
The main objective of the course is to give the students a practical and theoretical insight into methods of risk assessment of hazardous substances, and the basic biological and ecotoxicology principles which make up the foundation for the risk assessment of hazardous substances. The course furthermore aims to give the students information on the similarities and dissimilarities in the frameworks and methods used by various national and international authorities involved in regulating and approving the use of hazardous substances, e.g. pesticides, pharmaceuticals and industrial chemicals.

When completing the course the students are expected to be able to:
- Explain the various concepts used to derive environmental quality standards
- Select relevant data useful for a risk assessment and be able to explain the biological and ecotoxicological principles for the data selection
- Calculate and predict generic exposure concentrations of hazardous substances for a number of selected scenarios, e.g. application of sewage sludge and pesticides
- Calculate the generic predicted no effect concentrations (PNEC) using ecotoxicological data
- Conduct a simple specific risk assessment of hazardous substances
- Conduct a descriptive risk assessment of a contaminated sites
- Present relevant knowledge on effect, fate, exposure and risk useful for decision makers

Content
In the course several risk assessment examples will be presented covering specific case studies as examples on how society set up methods, criteria and decisions tools for the risk assessment of hazardous substances. Lectures include:

1. A general introduction to chemicals and environmental protection schemes.
2. A short presentation of ecotoxicology as a scientific discipline and the concepts and tools used in risk assessment.

3. A decryption of various specific cases covering the marine environment, fresh water systems, agriculture and contaminated sites.

In the cases the students will be presented for scientific challenges, research results, relevant risk assessment methods of possibilities to mitigate the risk. This includes examples with waste water, sewage sludge, use of pesticides, fertilisers and the more than 14,000 contaminated sites found in Denmark. In addition to the lectures the student will have to work with relevant cases using data and methods helping them to calculate the risk.

The course will give the students competences useful for planning scientific research, regulatory purposes on as well national and international level.

There will be a minimum of one excursion in the course to a relevant location, e.g. a sewage treatment plan, an aquaculture or a contaminated site, where local-specific data will be used for a case-based exercise.

ADVANCED WATER CYCLE MANAGEMENT

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Niels Peter Revsbech
Date	11/8-23/8

Exam type: Written exam (one hour)
Academic prerequisites: The application should hold one of or similar to degree in: Bachelor in biological or chemical engineering, Bachelor in bioscience, Bachelor in geoscience, Bachelor in agroecology, Bachelor of engineering or Bachelor student (diplomingeniør) (4.-7. Semester), Bachelor of Technology Management

Description of qualifications
The overall goal of the course is to give the students a substantial knowledge of water resource management, water distribution and wastewater handling including resource recovery.

The objective of the course is to give the participants experience in applying the established engineering knowledge, knowhow and state of the art components in the whole water cycle, from abstraction to the delivery of the cleaned wastewater back to nature. In relation to this, the participants will learn about how to analyze advantages, problems and principles in water related issues, and understand how to minimise unnecessary water and energy consumption, and how to turn waste water treatment plants into being net energy producing. An important aspect is to learn how the various types of instruments and components used in water management can operate in concert.

The participants will learn how to work in teams, and how to help solving the challenges of water use in a world short of this most limiting substance.

Furthermore, the participants will:

- Be on the cutting edge with the latest technics and best practices when mapping, protecting and extracting groundwater.
- Have learned how the newest and most modern techniques to handle groundwater and drinking water are used in real life.
- Know how machine learning techniques and artificial intelligence can be applied to the water supply chain.
- Be able to establish sustainable groundwater abstraction through responsible and knowledge-based protection of water resources and to perform qualified decision-making.

The summer school will be conducted in close cooperation between industrial partners who, along with university staff members, contribute with theoretical lectures and input to the case exercises.

Having attended the course, the participant should be able to:
- Describe the principles of the water cycle in a society from abstraction as groundwater, through distribution network, and the collection and handling of wastewater.
- Describe the approaches to groundwater management, including mapping, abstraction and handling and relate this to the challenges imposed by a continued use of groundwater.
- Compare and contrast different approaches to minimize water loss including methods of sustainable SMART Water Management. This includes knowledge and best practice on smart metering, remote reading, data handling and ways to transfer data into knowledge that improves the operation of the water network.
- Describe the various approaches to wastewater handling and relate these to the challenges of using wastewater as a resource.
- Analyze design criteria for abstraction of groundwater.
- Analyze design criteria for interaction of components in the water distribution system.
- Analyze design criteria for a wastewater treatment plant with the aim of resource recovery.
- Discuss alternative solutions to the mainstream approaches.
- Work in teams on cases related to water management to solve current problems in industry.

Content

The course will initially provide the student with a review of the three main theme at the course, ground water resource management, water distribution, and wastewater handling. This leaves the student with a general overview of the entire water cycle. After the initial week of general introduction to the entire water cycle the participants will be divided in three groups representing the three main topics so that they can be taught and obtain in-depth knowledge about the chosen topic. In connection with the extensive representation of leading industry experts there will be on-site visits to Grundfos, Kamstrup A/S, AVK International, SkyTEM Aps, Skanderborg Forsyningsvirksomhed – Aquaglobe and Aarhus Water. The on-site training will complement classroom teaching. Here water technologies in actual use are show-cased to the students providing a unique learning environment and vehicle for further discussion, idea generation and critical reflection. The group assignment during the second half of the course is conducted in groups of four students. When signing up for the course, the student will be asked to indicate subject of interest (ground water resource mapping and management, water distribution, and wastewater handling) by priority. With the assistance from the teachers of the course, a specific topic within the three main subjects will be analyzed and alternative solutions to the mainstream approaches will be discussed in detail. The topics analyzed will be actual case stories/challenges from the water sector. Each group will give a 20 min. oral presentation based on the assignment. A panel of relevant university researchers and industry experts will evaluate the presentation as passed or not passed. A prize is given to the group with the best presentation, solution or innovative thinking.

INTEGRATED NUTRIENT MANAGEMENT

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Tommy Dalgaard
Date	24/6-29/6

Exam type: Take home assignment (online hand-in)
Academic prerequisites: Participants are expected to have a basic knowledge in agrobiology and agricultural production systems.

Description of qualifications
The aim of the course is to give you insight into the roles of research, consultancy and legislation in the integrated nutrient management in Denmark and how they contributed to reduce the impact of agriculture on the water environment.

You will be challenged to grasp complex issues dealing, not only with natural science, technology, and economics, but also their relationship to society. A series of environmental legislation called the Water Environment Plan (WEP) is used as a teaching tool to illustrate complex issues such as these. The WEP deals, among other things, with the leaching of nutrients from agricultural fields into the water environment. All important aspects of the WEP related to the course will be explored. You will meet people who are associated with the WEP in different ways. Also, a number of study excursions will be arranged so that you can visit the experimental fields and the places where the WEP is implemented in practice. The basic idea of the course is to give you the opportunity to think about and learn how theories are applied to practice. The course is a link between theory and practice.

On successful completion of the course, you will have acquired knowledge and experiences that can help you to

- Describe influences of agriculture on nutrient management
- Discuss and understand the influence of nitrogen and phosphorus leaching on water environment
- Suggest and valuate measures applied to reduce the leaching? And relate how to implement them in actual farming?
- Relate to the roles of research, consultancy and legislation in integrated nutrient management that reduced leaching of nutrients

Content
The study week includes lectures (approx. 40%), excursions (approx. 40%), and group work (approx. 20%). You should also expect to work some evenings to prepare the report.

The study week will start with acquiring the background material; i.e., an introduction to Danish agriculture and a review of the WEP. Then the study will continue to dealing with subjects such as N- and P-leaching from agricultural fields to the water environment, effects of different approaches to reduce leaching, and the roles of the involved parties. Research scientists, agricultural advisers, farmers, municipality administrators, and agricultural organization representatives will be the lecturers. When visiting farms that produce plants, milk, meat, and ecological products you will have opportunities to talk to farmers about their experiences and the meaning of the WEP for them. By visiting Maabjerg Biogas, a water quality monitoring station at a creek and nature restoration project site at the Skjern River you will acquire a broader understanding of the agricultural–environmental issues and sustainable agricultural development. At the experimental fields, you can learn about recent research dealing with the sustainability of the agriculture.

You will work on a given subject in a group and prepare group presentations at the end of the study week.

Subsequent to the study week, you have to submit a report (deadline before semester-start in August), which is evaluated as the course exam.

BIOACTIVE MOLECULES IN AGROECOLOGY

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Karl-Martin Vagn Jensen
Date	29/7-9/8

Exam type: Take home assignment (online hand-in)
Academic prerequisites: Basic knowledge of chemistry (as obtained with BSc degree in Agro-environmental Management, Biology, Chemistry).

Description of qualifications
Thousands of molecules influence the biological interactions in ecological systems. The overall objective of the course is that the students achieve understanding of the importance of bioactive molecules in agroecological interactions. The students get acquainted with bioactive plant defense compounds, phytochemicals, contaminants and pesticides and will obtain the qualifications for explaining how the structure of the compounds determines their uptake in neighbouring biological organisms or in mammal consumers, their possible beneficial or negative effects as well as their transformation in soil or biological organisms. Student qualifications will cover both theoretical understanding and experience in performing laboratory assays related to fate and effects of bioactive compounds.

On completion of the course the students have attained competence to:

- Classify bioactive compounds of importance in agriculture on basis of their structure, physico-chemical properties and their origin.
- Explain the degradation (aerobic and/or anaerobic) and sorption processes of small bioactive molecules in soil, water, atmosphere and conclude on the factors that influence these processes.
- Analyse the content of bioactive molecules and their degradation products in soil with LC-MSMS analytical equipment and model the kinetics for the process
- Evaluate the applicability of the newest practical methods used in bioactive molecules research: quantitative measurements of residues in the environment and body fluids, toxicological cell tests, uptake and transformation in plants and mammals, effect of natural compounds fed to bees on the bees' capacity of transforming pesticides.
- Explain the principles of Absorption, Distribution, Metabolism, Excretion (ADME) of bioactive molecules, including Phase 1 and Phase 2 metabolisation processes.
- Report and discuss data from laboratory tests.

Content

The course covers the bioactive compounds that play a role in the agroecological context – i.e. in the interaction between plants, animals, humans and the environment within agricultural systems. Theoretical lectures will give the fundament for practical lab-work on a) degradation, formation of metabolites and description of degradation kinetics b) effects of cattle's intake of medicine on insects living on cattle manure c) use of plant root systems for uptake of pharmaceutical residues in the environment d) uptake and excretion in urine of bioactive compounds from rye bread e) toxicology testing in cell cultures f) effect of dietary phytochemicals on pesticide degradation in honeybees.

DIAGNOSIS OF PLANT DISEASE

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Mogens S. Hovmøller
Date	TBA

Exam type: Oral exam
Academic prerequisites: A course in microbiology or plant pathology is recommended.

Description of qualifications
The course aims to mediate basic knowledge, methods and techniques to enable you to diagnose and quantify plant diseases and other stresses in crop plants, using an array of diagnostic methods and assessment techniques.

After the course you should be able to:
- Diagnose and describe typical plant pathogens infecting crop plants.
- Distinguish between symptoms caused by biotic and abiotic stresses
- Account for basic principles for diagnosis and quantification of plant diseases in crop plants.
- Apply practical diagnostic methods ranging from quantitative field assessments and microscopy to molecular and serological methods.
- Critical evaluation of problems related to disease diagnosis and assessment.

Content
The course will introduce you to common plant diseases in crop plants. It is based on short introductory sessions followed by practical exercises, in which you diagnose plant diseases under field conditions as well as in the laboratory. The exercises include diagnosis based on macroscopic symptoms as well as microscopy, ELISA and PCR methods and quantitative disease assessment under natural conditions. The influence of abiotic stresses and leaf senescence on macroscopic symptoms is considered as well. Most exercises are done in small groups under supervision of teachers. This will allow you to study specific subjects in more detail, as basis for analyses, data processing and reporting.

ADVANCED SOIL PHYSICS

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Lis W. de Jonge
Date	11/8-23/8

Exam type: Take home assignment (online hand-in)
Academic prerequisites: Participants are expected to have a basic knowledge of soil science and soil physics.

Description of qualifications
The course is designed to give the student an in-depth understanding of the soil as a three-phase system (solid, liquid, gas). A basic knowledge of soil science and physics as a discipline is assumed. On this basis, the aim is to provide a quantitative description of soil architecture and the physical processes in the soil pore system. The course will give a fundamental understanding of the methods used to describe soil properties and soil physical processes including those responsible for transport and leaching from the vadose zone to ground water and/or the aquatic environment. The course will also provide fundamental knowledge of the methods used for mapping soil spatial variability.

On completion of the course, participants should be able to describe and discuss:

- soil physical properties (texture, structure, porosity, stability) soil flow mechanisms
- the principles behind soil transport of dissolved and particle-bound nutrients and pollutants
- soil hydraulic parameters and their use in a model context
- the effects of structural changes on soil physical processes
- the phenomenon water repellency and its implications
- classical and sensor-based methods for soil mapping
- and implement a quantitative assessment of a soil's carrying capacity in relation to its strength

Content
The course starts with a review of soil structure, including the interaction between mineral particles, organic material and soil biomass in a self-organizing system. The structural stability is described both for soil as an undisturbed, three-dimensional medium (soil mechanical properties) and for wet or dry fragmentation (e.g. aggregate stability and clay dispersion). Soil pore structure is described in relation to its water and air content and includes a thorough review of the concept of water potential. There is focus on describing and understanding soil water-holding and water-transporting properties and their importance for soil physical characteristics and also as a medium for plant growth.

In this connection the most up-to-date measuring methods and modelling concepts covering oven-dry to saturated conditions will be reviewed. The latest knowledge on diffusive and convective transport of water and air is presented in relation to both pore characterisation and important transport processes in soil, including the principles on matrix vs. preferential flow. The role of soil as a filter will be thoroughly explained.

In this connection there will be focus on the transport and degradation of dissolved and particle-bound substances in soil water (both nutrients and pollutants such as pesticides). These are described with the integration of the processes for ad- and desorption and colloid mobilisation. Phenomena such as water repellency in soil, resulting in preferential flow of water, will be covered and so will the principles regarding temperature conditions in the soil. There will be focus on the effect of scale and on the spatial variability of the soil physical properties and processes. Mathematical models describing the physical processes will be presented. Sensors and techniques for prediction and mapping of soil properties will likewise be covered.

FEED RATION PLANNING IN DAIRY CATTLE HERDS

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Martin Riis Weisbjerg
Date	5/8-15/8

Exam type: Oral presentation + hand in of report
Academic prerequisites: B.Sc. including courses in livestock animal physiology and nutrition

Description of qualifications
To qualify the students to plan, evaluate and discuss feeding rations in commercial dairy herds.

Learning outcomes:
- Describe and generate plans of feed supply – crop rotation, crop production, allocation of feeds among animal categories/ groups, forage/concentrates, self-supply,
- Describe and discuss feed production – quantity and quality, conservation and processing
- Describe and combine feed analyses and evaluation – energy, protein, input parameters for different systems
- Describe and discuss elements of ration formulation – nutrient requirements, response curves, individuals / groups, feed intake capacity
- Describe and compare mathematical models describing digestion and metabolism – model types (mechanistic vs empirical, dynamic vs static, additive vs non-additive, etc.), digestion kinetics,
- Describe and compare feed planning and evaluation tools – NorFor, and others – comparative approach
- Apply the NorFor tool (international client) and a tool for feed budgeting
- Discuss and relate feed ration optimisation to optimal production level, cost minimisation, diminishing returns

Content
Before the course students individually prepare a report (2 standard pages) and a presentation (10 min) about their current and previous national feed evaluation system for dairy cattle. The report must be handed in at the start of the residential course. During the course students are trained to plan, evaluate and discuss feeding rations in commercial dairy herds using the NorFor system, and to discuss elements of this based on lectures, literature, farm data and cases, excursions, individual and group discussions, exercises and report writing. After the course students will prepare a group report (3-4 standard pages per student) on feed budgeting and planning in commercial dairy herds with a focus on ration optimisation to optimal production level and cost minimisation. At the end of the course the groups present their report outline and status. The group report must be handed in two weeks (14 days) after ending of the residential course.

The course will handle feed supply, including crop rotation, crop production, effects on self-supply, and optimization of feed allocation within and among animal categories/groups, including forage/concentrate ratio. Further feed production is described, including the effect of conservation and processing on feed quantity and quality. Feed evaluation including feed analyses and evaluation, and variation between different systems in energy and protein values and input parameters is discussed. Further nutrient requirements, and effects of ration formulation on cows response on individual and group level, as well as feed intake capacity is discussed. The use of mathematical models to describe digestion and metabolism, and model types (mechanistic vs. empirical, dynamic vs. static, additive vs. non-additive, etc.) will be discussed, and also models describing digestion kinetics is part of the course. Feed planning systems and evaluation tools will be compared and discussed, and there will be worked actively with the system NorFor, and others, in a comparative approach. Feed budgeting and planning exercises is performed on a real life situation. The course will end in discussing feed ration optimization to optimize production level, to maximize the difference between input costs and output revenue, hereunder discussion on diminishing returns at increased input level.

FOOD AND INGREDIENTS

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Margrethe Therkildsen
Date	22/7-9/8

Exam type: Written exam (60 minutes)
Academic prerequisites: The course requires a bachelor in food related educations, including food science, molecular biology, agriculture, chemistry or technical scienc.

Description of qualifications
Having attended the course, you should be able to:

- Examine the multidisciplinary challenges of working with heterogeneous raw material in the further processing for either food or ingredients
- Analyze production concepts that explore raw materials, side streams and waste products aimed for food and ingredients
- Evaluate processes/strategies of product development
- Demonstrate capability of teamwork and case related problem solving.
- Show experience in procedures for professional problem solving in a research and industrial environment.

Content
The purpose of the summer school is to discuss some of the latest knowledge in food and ingredients, and to enable participants to apply their competencies in food sciences to the challenges and opportunities when developing novel, differentiated and sustainable foods and ingredients.

The summer course is organized in close collaboration with representatives from both small and large food companies in Denmark, which will lead to an insight into a highly innovative and leading food ecosystem in Europe, and demonstrate how to take ideas from science to the industry and from industry to science.

The summer courses main focus areas will be on

- Raw material quality
- Differentiated and value added foods and ingredients
- Quality and trustworthy food and ingredients
- Sustainability including use of waste streams for new types of foods and ingredients
- Minimizing food waste through handling in the entire food chain
- Alternative sources as material for food and ingredients
- Risk assessment
- Sensory psychology
- Entrepreneurship

YOUTH, DRUGS AND ALCOHOL - SOCIAL SCIENCES APPROACH

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Lea Trier Krøll
Date	2/7-19/7

Exam type: Take home assignment on selfchosen topic (online hand-in)
Academic prerequisites: The course is designed for students within the social sciences, such as psychology, anthropology, criminology, cultural studies, ethnology, history, political science, and sociology. No prior knowledge of drug research is required.

Description of qualifications
By the end of the course, participants will be able to:

- identify and describe key concepts in contemporary social science research on alcohol and drug use among youth;
- identify and describe debates in contemporary social science research on alcohol and drug use among youth;
- analyse alcohol and drug use among youth from different social science perspectives;
- assess the strengths and limitations of different social science perspectives in drug research.

Content
Students must read and prepare for the course approx. one week before the first day of in-class teaching.

Among many young Europeans, alcohol and drugs are the preferred means of altering consciousness. These substances are used as part of various social activities either on weekends in bars, nightclubs, or music festivals, or on weekdays. This course examines both alcohol and drug use that are perceived as problematic and unproblematic by young people themselves and it discusses how alcohol and drug related problems and risks are perceived and addressed from various social science perspectives.

During the course, students will discuss the following key questions: How do young people intoxicate themselves in contemporary western societies? How do various social factors intersect with alcohol and drug use (marginalization, gender, sexuality, ethnicity etc.)? How are young people's alcohol and drug use problematized and conceptualized? How can alcohol and drug abuse be prevented and treated?

The course will introduce students to a range of social science approaches to the study of alcohol and drugs use among youth, and it will ask students to reflect upon the interdisciplinarity of the field of alcohol and drug research.

UNDERSTANDING EUROPEAN UNION POLITICS

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Roman Senninger
Date	2/7-19/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
The overall purpose of this seminar is to give participants a comprehensive understanding of the European Union (EU) that they can use in future jobs and as a foundation for further specialisation in EU politics. The seminar aims to provide a research-based introduction to the institutions, decision-making processes and policies of the EU. We will work with data about the EU and its institutions and closely follow the EU policy-making process on the basis of selected proposals/laws.

The student is able to:

- understand and analyse the nature and role of the EU familiarise themselves with and apply theories and concepts of European integration
- know about the central institutions of the EU and their role in the decision-making process
- comprehend the evolution of EU policies from proposal status to implementation
- grasp issues and debates about the EU relevant to political actors at the national level.

Content
From the outside, the EU often creates the impression of being a messy political unit.

One reason for this public image is that decision-making in the European Union relies on many different actors and institutions. As a consequence, it is often difficult to comprehend who develops policy proposals, how decisions are made and who is responsible for policy outcomes. In this seminar, we take a close look at the institutions, processes and policies of the EU to reach the aim of understanding European Union politics. The seminar is structured as follows.

Introduction
The seminar kicks off with an introduction to the European integration process. We cover milestones, discuss treaty amendments and examine the central theoretical and conceptual approaches to understand the European integration process.

Institutions
This part of the seminar provides a general introduction to the central institutions of the EU, including the Commission, the Council of the European Union, the European Council, the European Parliament and the Court of Justice of the European Union.

Decision-making
This component of the course introduces how policy decisions are taken in the European Union. We build on our knowledge about the institutions of the European Union to investigate the formal balance of power in the decision-making process. To do so, we follow the evolution of a policy from proposal status to successful implementation.

Policies
Next, we look at specific policy areas in detail. In particular, we investigate the Single Market, the Environmental Policy, and the Area of Freedom, Security and Justice. We identify areas in which the EU is very active and others in which the EU is more reluctant.

The EU and national politics
Finally, we investigate how the EU enters political competition at the national level. We especially focus on whether and how the EU matters to political parties and voters.

INEQUALITY AND THE WELFARE STATE

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Kees van Kersbergen
Date	22/7-9/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
- to introduce to students knowledge of why, how and to what effect different nations structure the provision of social services and transfers to their citizens differently
- to help students develop a critical approach to the understanding of major current social questions and political issues around the reform of the welfare state
- to help students to acquire theoretical and empirical knowledge of why and how politics affects inequality and vice versa
- to advance a critical analysis and understanding of inequality as a major social question and political issue
- to stimulate critical reflection on the question whether, how and
- to what extent existing welfare state policies reinforce or diminish inequality.

Among the competences to be achieved by the student in this module are:
- the ability to analyse and synthesise critically diverging approaches to the analysis of the welfare state and inequality
- an understanding of fundamental concepts, terms and designs of comparative social policy analysis and welfare state studies
- the ability to hold in-class presentations that stimulate discussion
- a good working knowledge of (the origins, meaning and consequences of) cross-national similarities and differences in social policies and their impact on inequality.

Content
This course introduces how political and other social scientists study the welfare state (part I) and then specifically zooms in on the politics of inequality, particularly focusing on the question whether, to what extent and how the welfare state affects income inequality in advanced democracies (part II).

In part I on the welfare state, we examine comparatively the history, growth, maturation, retrenchment and reform of a range of social policy areas as well as their consequences. The comparative political analysis of social policies, programmes and institutions helps us to understand why, how and to what effect advanced democracies deal with important social problems and issues.

For a proper understanding of the political opportunities and constraints of contemporary welfare state and social policy reform, we need to appreciate where the welfare state came from, why we have different worlds or regimes of welfare, how these regimes functioned, what the pressures in favour of reform are, why reform is so difficult and politically risky, and why it nevertheless happens and what are the consequences.

Part II on the politics of inequality and the welfare state is organised around key questions and issues: What is inequality and why is it politically important? How can we best measure inequality empirically? How has inequality developed over time – and what are the cross-national empirical patterns? How do political processes and institutions affect the distribution of societal resources via the welfare state? Does redistribution via the welfare state harm economic growth and employment? Does inequality lead to more or less political polarisation? Does income inequality imply political inequality?

EU POLITICS IN THEORY AND PRACTICE - INTERNATIONAL SUMMER COURSE IN BRUSSELS

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Jens Blom-Hansen
Date	1/7-19/7

Exam type: Written exam under supervision with pc (3 hours)
Academic prerequisites: None

Description of qualifications
The learning goals for this course are:
- Participants can explain institutions, decision processes and the public policies of the EU
- Participants can explain selected theories, methods and themes in the study of the EU
- Participants can compare selected theories, methods and themes in the study of the EU and identify differences/similarities between them as well as their strengths/weaknesses
- Participants are able to apply theories, approaches and methods that are relevant for studying research questions about the EU
- Participants can evaluate the implementation of theories, approaches and methods introduced in the course.

Contents
Almost all societal problems transcend national borders today. Think of environmental protection, transportation issues, migration, economic and financial crises, trade barriers, energy, fishing and defence. To handle them, countries need to cooperate. In Europe, the European Union (EU) has been created for this exact purpose. The EU is therefore of immense importance to European citizens and businesses. However, the EU often appears physically remote, bewildering in complexity and impenetrable to outsiders. If you are not part of the "Brussels bubble", you can feel lost.

This course is your way out of this frustration. It moves the whole teaching situation to Brussels and combines introductions to EU institutions, decision procedures and policies with site visits to the most important actors in EU politics. The idea is to combine the best from in-depth teaching sessions with carefully designed study trips in order to get an intimate understanding of what the EU is all about. We will visit formal decision-makers like the Council of Ministers, the European Commission and the European Parliament. However, we will also visit actors, who are not official decision-makers, but still very influential in EU politics, for example national EU representations ("EU embassies"), euro-groups (e.g. Business Europe, the largest Europe-wide business lobby organisation), subnational interest representations (e.g. the Brussels office of the German state of Bavaria) and national lobby organisations (e.g. the Danish Trade Union EU Office in Brussels).

The course takes place over three weeks in July 2019 – from Monday 1 July until Friday 19 July. Therefore, it is intensive, and the participants should be ready to spend all normal working time during these three weeks preparing for the teaching sessions, taking active part in the teaching sessions, preparing for the study visits and actively contributing to the maximum outcome of these study visits.

The teaching part of the course will include 8-10 four-hour teaching sessions and cover the following topics:

- The history of the EU
- The institutions of the EU: The European Council, the Council of Ministers, the European Parliament, the European Commission and the European Court of Justice
- Decision-making processes in the EU: legislation (the ordinary legislative procedure) and delegated legislation (administrative regulation)
- Lobbyism in the EU
- The internal and external policies of the EU
- The EU and national politics
- Enlargement
- Brexit.

The teaching sessions will provide the participants with in-depth knowledge of the EU, but will also function as preparation for the study visits. To gain the maximum benefit from the study visits, participants will be divided into groups that in turn will be responsible for preparing the visits – that is, to use the lessons from the teaching sessions to drill all participants in issues and questions that we should seek answers to during the visits.

The participants complete the course by a written online 3-hour exam that takes place one week after the course. Since the exam is online, the participants can take it in their home country or elsewhere. The only requirement is a computer and an internet connection. The final grade will be based on an evaluation of both the written exam and the individual participant's activity level during the course.

Practicalities
The course takes place at the Brussels campus of the University of Kent (link: https://www.kent.ac.uk/maps/brussels/#), which has entered into a strategic partnership with Aarhus University. Transportation to/from Brussels, local transportation as well as board and lodging are to be paid and organised by each participant. But participants will be offered a package deal comprising youth hostel accommodation in Brussels and a local transportation card.
An information meeting will be held at Aarhus University in the spring of 2019 before departure. In the meantime, potential participants are also welcome to contact the responsible teacher, Jens Blom-Hansen, at jbh@ps.au.dk for more information.

CONSULTING FRAMEWORKS, INTERNATIONAL PMOs AND PROJECT MANAGEMENT

ECTS	10
Level	Master
Lecturer	Robert Joslin
Date	22/7-9/8

COURSE DESCRIPTION

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: A fundamental awareness of projects, project terminology, governance, leadership

Description of qualifications
Learning outcomes:

- Analyze ambiguity and the importance of degrees of freedom to achieve competitive advantage
- Debate the importance of consulting frameworks, what types of frameworks exist, how to assessment the environment and design one or more interlinked frameworks that provide a clear understanding of what needs to be done within context of the business environment.
- Compare the building blocks for strategy formulation, strategy execution and which consulting frameworks could be applied to achieve a desired outcome.
- Appraise which critical success factors greatly increase success, which are based on empirical research findings on PMOs, projects, programs and portfolio.
- Organize the definitions and measures of success, objectively, in complex environments.
- Propose how to build the context and justification for a PMO
- Assess key aspects of complexity management and mega - project management
- Compare the meaning and types of project methodologies, judge when to use them in project, programs and portfolios
- Demonstrate the value of principles and when to use them in your workplace and within project, program, portfolio and PMO methodologies.
- Assess the impact of human factors, including communications, ethics and psychology of project management.
- Critique how to successfully lead, innovate, and run PMOs, projects, programs and portfolios in a dynamic environment.

Content
The purpose of the course is to help prepare future managers/ leaders to better analyze and understand organizations through the design and application of consulting frameworks. Preparing them for positions within the world of projects, programs, portfolios and PMOs.

The participants will gain the knowledge of how to become an effective consultant, PMO, project, program or portfolio manager with a demonstrably sound understanding of different perspectives, approaches, frameworks and techniques that are the foundations of these professions.

For the participants who prefer to have an operational role but want to understand more about the world of projects; this course will provide detailed insights into areas that create and ensure future organizational competitiveness.

Course Modules
Module 0 Introduction: Practitioners, Researchers and insights into research in project managementModule 1: Ambiguity, and how to master itModule 2: Consulting FrameworksModule 3: Complexity and mega project managementModule 4: Enterprise PMOs - building the context and need for a PMO lifecycle frameworkModule 5: Understanding human factors including; communications, ethics and psychology of project managementModule 6: Project management Life cycle for international projects

Case study
The industry-based case study has been designed to allow the participants to act out several roles including, senior management, senior PM and PMO project, program and portfolio managers, CEO of a start-up.

The case study is associated within international project management and includes more than 30 exercises. The participants will work in teams throughout the case study and follow a structure that builds upon realistic scenarios, derived from real-life examples, of organizations in transition. The case study reflects the types of decisions and issues associated with topics covered. The teams will produce key document deliverables (artifacts). There will be role play and coaching throughout the duration of the case study analysis and exercises, which covers two course weeks. The case study builds on the knowledge gained throughout the Master course and embeds the knowledge in the extensive exercises.

VISION, DECISION AND LEADERSHIP

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Guido Fioretti
Date	22/7-2/8

Exam type: Set home assignment (3 hours, administered online)

Description of qualifications
Vision is the most essential ingredient of leadership. This course illustrates how visions arise out of collective decision-making, naturally leading to socially accepted leadership.

Visions are based on business narratives that provide a coherent interpretation of the past pointing towards a direction for the future. This course understands the emergence of business narratives with the aid of established decision theories from economics, sociology, group psychoanalysis, management and cognitive science.

Learning objectives:

Knowledge and understanding
Understanding otherwise puzzling organizational decisions as manifestations of invariant patterns of human decision making
Understanding both individual and collective decision-making as arising from seeking coherence between alternative understandings of reality.

Skills
Evaluating the appropriateness of alternative decision theories to specific situations
Figuring out the organizational outcomes of individual actions aimed at solving problems or obtaining legitimacy.

Competencies
Designing business narratives that can be easily grasped and that resonate with the participants' interests and objectives
Embedding democratic leadership into organizations characterized by hierarchy, discipline, and a need to innovate.

Content
This course covers the following topics:

- Alternative theories of collective decision-making from economics, sociology, group psychoanalysis, management and cognitive science: Rational decision-making, group and social pressures, instinct-based decision-making, bounded rationality.
- The Garbage Can Model of organizational choice. A computer-based simulation showing unexpected organizational outcomes of individual behavior.

- Decision-making as coherence-seeking. Arranging available evidence into networks of causal relations in order to arrive at shared decisions.
- Visions and narratives. Constructing coherent interpretations of the past that provide orientation for the future. Positive and negative organizational narratives.
- Leadership based on a shared vision. Collective foundations of individual leadership. Leadership, organizational identity and pride.

MANAGING CHINA CROSS-BORDER DEVELOPMENT

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Terrill L. Frantz
Date	2/7-19/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites:
Students should have at least a passing acquaintance of general business-related topics. Ideal, but non-required prerequisites for this class include undergraduate-level courses such as: (a) Financial Accounting, (b) Introduction to Management, (c) Organizational Behavior, (d) Macro Economics, (e) Business Strategy, and (f) Corporate Finance. Graduate-level completion of the above courses would situate the student for even greater learning and deeper understanding of the course material.

Description of qualifications
After successfully completing this course, the student will be able to:

- Identify, analyze, think critical of, and effectively communicate, global management-related business matters—such as multifaceted risks and benefits of business situations involving China—, and
- Stylize and describe profiles of counterparties to China commerce, such as Denmark, the EU, its 14 immediateneighbors, African countries, and other active nation-state partners, and
- Identify and recognize potential cross-border opportunities between business and customers in China and those of other countries, and
- Expound on how management and business is conducted in the context of business activity crossing China's borders, as it differs from purely domestic business activity, and
- Diagnose the multi-faceted intricacies of China cross-border management and business development, and then creatively craft specific solutions and opportunities for benefiting.

Content
Course develops students' management acumen, specifically when a Chinese-based business is a counterpart. China is expanding its economic footprint across its borders by acquiring or investing in offshore companies at an intense pace. Western managers of large and small businesses abruptly engaged with China are adversely surprised when faced with a business partner that operates with a very different world-view and whom has previously earned their success in an incomparable business environment.

The next generation of business managers must intimately understand the elusive perspective of their Chinese counterparts, beyond memorizing superficial business- etiquette training. This course is not about Chinese business etiquette; instead, this course is about developing an understanding and appreciation of the Chinese business-persons' point-of-view and China's economic state-of-affairs, so that the next generation of managers can adeptly engage with China productively, rather than naïvely react to the unforeseen complexity—often to the detriment of the manager's business.

Course content includes practicalities surrounding China-specific matters such as inbound and outbound cross-border mergers & acquisitions, the Go-Out Strategy, the One-Belt program, and domestic and international Special Economic Zones. Moreover, this course provides the historic context essential to understanding present-day activities, and examines current economic and business events that are representative of the real-world complexities of doing business with China—thus, advancing students' ability for managing a business that extends its activities across China's border. Completing this course has additional implications for students' understanding the broader context of international, strategic and cross-cultural management involving other countries as well.

This management-oriented course is comprised of business topics and events such as:

- The evolution of business, political, and foreign-relation histories of China,
- Chinese Foreign Direct Investment (inbound & outbound)
- Trade & Flow of Assets: goods (Customs) / flow of money (banking) / people (visa)
- Chinese Special Economic Zones (domestic & international)
- China's Membership in the World Trade Organization (WTO)
- CEPA: Hong Kong & CEPA Macau & ECFA (Taiwan)
- Competition Laws
- Renminbi (CNH/CNY) currency issues
- China & Regional Economic Communities: NAFTA; European Union; ASEAN/AEC; African Union
- Chinese engagement with Europe & Africa
- China's engagement with Denmark (and Greenland)

MANAGEMENT INFORMATION SYSTEMS

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	D.P Goyal
Date	22/7-9/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
After going through this course, students should be able to:

- describe the importance and concept of Information Systems (ISs) / Information Technology (IT) in business
- identify symptoms and key factors of the business problem. Clearly define a business problem using key facts
- critically analyze defined business problem using widely used analytical techniques, models, or frameworks in order to integrate different aspects of business
- propose potential alternative solution, evaluate them and recommend an appropriate solution
- apply the concepts of information systems in real life situations

Content
The purpose of any Information System is to help an Organisation manage its business better. For instance, an Inventory Management System would assist the organisation in keeping track of stocks and optimising stock levels. An HR Information system would help in managing the key Human Resources of the organisation, and so on. With ever increasing complexities of business as well as management, now a days, Information systems are not merely required for improving efficiency of business operations; rather these systems are used for effective business decisions and achieving strategic advantage. As a result of the increasing role of Information Technology (IT) in an enterprise, the functions of information systems are changing. It is transforming from a technology provider to a strategic partner and from a resource to a strategic tool. Because of the increasing use and participation of IT in all processes and projects, all the managers, irrespective of their functional areas, need to understand, deploy and effectively manage Information Systems (ISs)/IT.

The research on IS has clearly established that in many cases, Information Systems do not meet the business needs for which they were originally intended and thus fail to provide the expected return on investment/ business value. There are several reasons for this failure that include lack of planning; lack of alignment of business and IT, communication gap between the business and IT professionals; lack of effective IT project management and implementation and so on.

Most organizations tend to delegate the planning process to the IT Department, which in most cases views this as a technical problem rather than a solution to a business need. The key to successful IS Implementation, therefore, is to create a "Business – linked Information Systems Plan". Accordingly, IS planning forms a key component of this MIS course.

The other important issue in the area of MIS is the underlying IT technologies that support Information Systems. Most managers need to take decisions with regard to these technologies. Unfortunately however, most of them do not have sufficient understanding of these technologies, and therefore leave key decisions to technologists – with disastrous consequences. Therefore, another component of this course will cover the basics of IT technologies that are today commonly used in organizations, along with implications for managers.

Finally, once the IS Plan is in place; the systems decided upon must be either bought out or developed, and ultimately implemented. The last component of the course would therefore focus on ERP systems (which are the most commonly available bought out systems in the market). It would also cover the process of Information System Analysis and Design, with emphasis on Requirements Analysis, which would be used when systems are to be developed.

LEADING AND DESIGNING ORGANISATIONS

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Ajay Kumar Jain
Date	22/7-9/8

Exam type: Set home assignment (3 hours, administered online)

The course is suited to people who wish to go into strategy consulting, ran a family business, or who aspire to be the part of top management. If you master the concepts in the course, you will appreciate how internal design elements, (such as structure, culture, political dynamics, and organizational knowledge) interact to enact the business strategy of a firm. There will be used cases from a variety of organizational settings (advertising, manufacturing, consulting, aviation, Telecommunication etc.) which will help students to appreciate the design issues in a more objective manner. The prior work experience is an extra aid in learning from this course.

Description of qualifications
- Understanding business context and needed leadership and organizational competencies;
- Understanding the nature, determinants and outcomes, of the structure and processes of the organization as a whole.
- Appreciation of the macro organizational issues involved in the change and transformation processes of organizations.
- Ability to reconfigure organizations in terms of its design characteristics so as to assure corporate excellence.
- Inculcating competencies for developing appropriate intervention strategies for development
- Developing self-leadership competencies to effectively manage the development process

Content
In a highly competitive business environment, professional organizations require leadership, strategy, adaptability, and coordination on a scale never before imagined. In this regard the major challenge is how to design the organization to cope up with the complex and dynamic business realities. A great organization has the capability to align quickly with the internal processes and external pressures. The concern with how best to cope with these challenges is evidenced by the success of numerous popular management books including “Blue Ocean Strategy”, “Built to Last”, “The fifth Discipline” etc. The common theme in these books is the effective organization design.

Furthermore, organizations need managers with high leadership potential right at the entry stage, characterized by a whole host of attributes: Emotional Intelligence, Conflict Management, Change Management, Team Working and Capacity to influence and distribute leadership. Thus managers need to align their personal competencies to successfully establish and transform a business enterprise.

Technological advantage, financial planning, and marketing skills are important, but they must be coupled with skilled organization design and the management of people. I have designed the course on "Leading and Designing Organizations" to help you to understand how organizations works from inside in terms strategies, structure, system, culture and human resource and how managers can develop some of the required competencies to design or redesign a company.

Main issues

In cases studies of several organizations Southwest Airlines, McKinsey, 3M, J&J, P&G, Walt Disney, it is seen that empowered employees and the design of a learning organization often improve productivity, profits and suitability. As a starting point, this course is organized around three different perspectives on organizations: the strategic design perspective, the political perspective, and the cultural perspective. Each of them offers a different angle on what is an organization, and each offers different tools for action.

STRATEGIC MANAGEMENT OF CREATIVITY AND INNOVATION

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Louis Rinfret
Date	2/7-19/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: The course is suitable for master level students with a general understanding of business principles.

Description of qualifications
Innovation is the cornerstone of successful organisations and economies across the globe. Consider the growing pace at which we witness change in our environment as well as in the technological, social and geopolitical landscapes. Velocity is fuelling the need for innovation, and the pace is expected to intensify in the foreseeable future.

Successful management of creativity and innovation is therefore critical in achieving sustainable competitive advantage. Most organisations have recognized this, but only a few have truly mastered the art.

Managing innovation requires specific skills, which remain uncommon. This course is geared towards those interested in gaining a deeper understanding of the issues underpinning creativity and innovation in organisations, as well as the ways in which they can be developed and managed successfully.

By the end of this course, students will:

- understand the nature and role of creativity and innovation within organisations
- be able to design strategies for sustainable innovation
- be familiar with the various types of innovations and innovation strategies
- know creativity techniques, tools and processes
- be able to use design thinking in the innovation process
- understand how to capture value from innovation
- appreciate the challenges and methods for designing innovative organizations

Content
Increasingly, organisations are exploring new paradigms to maximise the discovery and exploitation of ideas. Of course, this brings organisational tensions and challenges too. Our focus will be on developing participants' understanding of the value, strategies and management approaches that enable creativity and innovation in complex organisations and environments.

While theory frameworks will be reviewed during this course, the primary aim is to equip participants with real-world practical skills required to design and execute sustainable innovation strategies.

During the course students will learn about several key concepts supporting innovation, including:

Innovation types and strategies
Creativity at the individual, group and organisational levels
Creativity techniques and tools
Design thinking
Opportunity recognition
Open Innovation
Democratic Innovation
Designing strategic alliances and networks
Assessing the commercial potential of innovations
Business Model Innovation
Capturing value from innovation
New Product and Services Development Process
Designing the organizational environment for innovation

NEW VENTURE CREATION

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	S.P. Sassmannshausen
Date	22/7-9/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: This course does not require specific academic prerequisites; especially the course does not require previous business education. Students from non-business departments are especially welcome.

Description of qualifications
The course aims at qualifying for the strategic challenges related to new venture creation, growth and exit (or continuing). The course follows the typical life cycle of entrepreneurial ventures and the related (gestation) activities. Students will be qualified to create or recognize new venture opportunities, plan for new ventures, evaluate opportunities, and establish and manage new ventures even "against all odds". They will have the opportunity to leverage their social and methodological skills by discussing case issues and solutions with their peers and the instructor. This course is not about business planning. Instead, its perspective is on strategic challenges, management methods and resources, all especially designed for new ventures.

Students will be enabled to:

gain an empirical, theoretical and practical understanding of "the entrepreneur" and related concepts such like entrepreneurial traits/personality, self-efficavy, intentrions, and motivation,
understand theoretically opportunity creation or identification and to apply this knowledge to the field by identifying or creating own opportunities; and
evaluate various forms of opportunities;
size the upside and downside potential of opportunities;
generate and analyze value propositions;
generate and compare business models;
plan market entry activities;
understand and apply guerilla marketing strategies;
identify uncontested distribution channels in "b to b" and "b to c";
understand and apply pricing methods for start-ups;
plan and apply regional growth methodology and value creation;
understand the theory of entrepreneurial uncertainty, risk, and finance,
develop strategies and methods in coping with uncertainty and reducing risks,
develop strategies for legitimizing new ventures in stakeholder interaction,

analyse markets and business models to transform “red oceans” to “blue oceans”;
compare growth and exist strategies in entrepreneurship;
understand various markets;
understand and apply entrepreneurship as “rule breaking” behavior;
discern institutional entrepreneurship from non-institutional entrepreneurship and small business.

Furthermore students learn to apply methods like Opportunity Diamond, Give-and-Get / Risk and Reward Matrix, Bootstrapping, Guerilla Marketing, Osterwalder’s Business Model Canvas, COSTAR Method in designing business models, Leschke’s Business Model Map, constructing and deconstructing financial impact of business plans and business models (financials), business angels, venture capital, crowd finance and many others.

Content
The content includes but is not limited to the entrepreneurial individual and team, opportunity creation or identification and evaluation, entrepreneurial uncertainty and risk, legitimacy for new venture, market entry, contested and uncontested market elements, distribution channels, regional growth methodology, value creation, entrepreneurial finance, managing growth and exist strategies.

Students learn to apply methods in entrepreneurship and new venture creation like Lean Start-up Methodology, Opportunity Diamond, Give-and-Get / Risk and Reward Matrix, Bootstrapping, Guerrilla Marketing, Osterwalder’s Business Model Canvas, COSTAR Method in designing business models, Leschke’s Business Model Map, constructing and deconstructing of business plans and business models.

The content includes the reflection of entrepreneurship theory, such like opportunity creation or recognition theory, theory of rule breaking behaviour, effectuation theory, theory of the structural hole, and resource related theories. Theories are reflected from the perspective of real case studies and how an understanding of the theory can enrich entrepreneurs’ abilities in new venture creation.

LANGUAGE AND MARKETING

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Dieter Thoma
Date	2/7-19/7

Exam type: Set home assignment (3 hours, administeres online)
Academic prerequisites: This course does not require any specific previous subject knowledge as it is interdisciplinary in nature, however, it is very fruitful if students can add expertise from areas such as: Market research, Advertising, Psycholinguistics, Cognitive psychology, Empirical research methodology, Statistics, Communication studies

Description of qualifications
This course provides a range of interdisciplinary contents and sources recent empirical work. It has high practical relevance for applied research on marketing communication.

In this course, students acquire basic knowledge in central areas of psycholinguistics and marketing communication. They learn to recognize relations between semantic and processing structures in language and the effects of linguistically determined advertising and market research instruments. The practical aim is that students learn to apply this new knowledge analytically and constructively to solve authentic marketing problems. As a by-product this course provides training in important skills such as reading and comprehending research articles and basic statistics, giving informative and concise presentations and teamwork.

As a result of this course students must:
- Have acquired basic knowledge in central areas of psycholinguistics and marketing communication.
- Be able to recognize relations between semantic and processing structures in language and the effects of linguistically determined marketing/ advertising and market research instruments.
- Be able to apply this new knowledge analytically and constructively to solve authentic problems in market research and advertising.
- Have improved their skills in reading and comprehending research articles, giving informative and concise presentations, working in teams effectively.

Content
Marketing communication and research heavily rely on language. Advertisers use language to convince consumers to buy a certain product. Market researchers ask consumers what they think about a product or what kind of product consumers think they need. Obviously, the success of such marketing efforts depends on linguistic and psycholinguistic processes.

Recently, the application of psycholinguistic theory to marketing communication has become a topic of great prominence in the field of consumer behavior. The use of certain linguistic structures aims at increasing activating and cognitive psychological processes, or at measuring such non-linguistic psychological variables as attention, attitude and memory. In this course, we build up psycholinguistic background knowledge and simultaneously analyze how this knowledge has been applied to the marketing context.

Selected topics are:

Theoretical foundations of the interfaces between language, cognition and consumer behavior
How principles of sound symbolism and human word recognition can inform brand name construction
How needs, expectations and ethics determine the potentials and limits of subliminal advertising
How linguistic framing manipulates consumer decision making
How exploiting semantic relations provides structure for consumer learning
How flouting the Maximes of Conversation gains attention and raises awareness in behavioral change marketing
How conceptual metaphors in marketing communications realize heuristic and decorative functions
How bilingual language processing affects cognitive and emotional consumer reactions
How narrative structure in commercials affects memory and emotions

The course uses a practical approach and continuously shows how theory and research evidence are relevant to analyze and criticize authentic examples from marketing practice. Moreover, we work on three extensive case studies that allow students to integrate and productively apply the course content. The cases involve developing a brand name for a pharmaceutical product, building an awareness campaign for a non-profit organization and creating a story for a crowd-sourcing campaign of a start-up company. The cases simulate agency pitches where students work in small teams (agencies), present and competitively peer-vote to select the best campaign.

LEADERSHIP, MANAGEMENT STRATEGY AND BUSINESS ETHICS

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Justinus C. Pech
Date	22/7-9/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: This course is designed for graduate students. By presuming an advanced knowledge of business administration, we will be able to enter more deeply into the material and thereby achieve more significant results.

Description of qualifications
Knowledge
The student will develop a general knowledge and understanding of the founding characteristics of leadership theories.
The participants will gain an in-depth and domain-specific understanding of the main concepts of ethical theories, based on the central philosophical concepts in Europe.
The students learn an in-depth knowledge on scientific explanations of the dark side of leadership.
By this work they learn the underlying assumptions of their own leadership style.
They develop an ability to reflect on the limitations and implications of the different theories of leadership and business ethics.

Skills
The students can identify complicated business ethics questions in their different contexts.
They can analyse complicated business ethics issues with the identification and us of the relevant ethical theories.
During the course an argumentation on a high academic level is provided and they can critically reflect own their own leadership style and ethical behaviour.
Social aspects when solving the business ethic cases are incorporated and they learn how the “right” ethical solution is also depending on the personal ethical principles.
By the use of the Pyramid Principle the students can structure the ethical problems in a better way.
Through the group working the students will learn to communicate and formulate the ethical and leadership questions in a clear and accurate way.
In the open discussions in class the students can learn to handle professional and academic leadership and ethic related questions on a high academic level and develop a form of “translation” to different stakeholders.
The students articulate the valid claims of classical authors, and employ various techniques

Competencies
The students will learn to work independently and systematically alone and in different teams.
They evaluate intelligently and embody deliberately a system of values through a personal style of strategic management.
They can define and explain what ethics means in leadership.
They learn based on cases taken from the real world the complexity of ethical and leadership questions and their integration into strategy.
In the course the students reflect and argue on a master level.
The students manage and complete empirical business ethic studies at a high academic level and in a professional manner in student teams with others. In those group works can test the leadership theories by the integration into their own behaviour and so find new leadership competencies.
They appreciate the competition between ethical behaviour and business or personal success.
They can promote ethical behaviour in the day-to-day business of a company.

Content
Can Aristotle help us lead better companies? A new approach to Management and Business Ethics for the leaders of tomorrow.

Aim of the course
This is a course for students in the master's programme. The main goal of this course is to understand different ethical explanation models and to present, discuss and practice different strategical methods and explore their theoretical background in business ethics. Since every level of management is shaped by its leaders, the focus of this course is on leadership and how leaders can influence the ethical behaviour of a company.

The Present Situation
Over the last decade, both before and after the financial crises, it became clear to many of those working in the business sector that we have several problems to solve in our economic system. Among the many different and important topics to consider, one is the ethical behaviour of the upper levels of management in big and medium-sized companies. A lot of scandals (Amazon, Den Danske Bank, different companies in the clothing industry, Facebook, Shell in Nigeria and in the Gulf of Mexico, Volkswagen and many others) showed to professors, managers and students that we need a new and broader reflection about how managers act in business and how we can integrate ethical perspectives into our management programs. My approach in these lectures is to integrate into a classical course about management strategy those ethical and human questions, problems and demands which, if left unaddressed, can create great challenges for handling a market (market cultivation). Wrong decisions by upper and top management can result in great problems which can also place the company itself in a precarious position, as we currently see, for example, in the case of the Deutsche Bank AG.

DIGITAL BUSINESS INNOVATION AND SOCIAL MEDIA

ECTS	10
Level	Bachelor
Lecturer	Magda Hercheui
Date	22/7-9/8

COURSE DESCRIPTION

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
In this course, students are to learn:
- Major digital technologies which bring business innovation in contemporary economies
- The emergence of new business models and new products and services enabled by digital infrastructures and platforms
- Strategies of successful companies which have used digital technologies to get sustainable competitive advantage
- Theories on innovation in the context of digital technologies and contemporary economies
- The business use of social media and social technologies as platforms of communication, collaboration, innovation and marketing
- Theories on the relevance of social networks and collaborative platforms for innovation, framing the content for current social media and social technologies
- The challenges of using digital social platforms for business and how to overcome these challenges in dynamic environments
- The emergence of cognitive computing and its impact in the workplace and in the preparation of the workforce

After the course, the students should be able to:
- Identify key factors and technologies which are relevant for business innovation in digital economies
- Design business strategies based on digital technologies and business models for fostering digital business innovation
- Understand how social media and social technologies enable and improve communication, collaboration, innovation and marketing
- Design social media strategies for meeting organisational objectives, considering resource constraint and context
- Plan responsible and effective social media adoption taking into consideration benefits, risks and challenges
- Explore the use of social media and social technologies for a variety of business applications
- Critically analyse business problems and digital solutions from different perspectives, leading change in organisations

Content

Aim of the course

The course aims to explore business innovation in the context of digital economies, discussing how changes in Information and Communication Technology are affecting the way organisations do businesses, e.g. the way new business models, products and services emerge. From this broad perspective, the course focuses particularly on exploring the role of social media in organisations, understanding their relevance for communication, collaboration, innovation and marketing within and across the boundaries of companies. The course explores the current state of art of digital infrastructures, platforms and technologies and the future development forecast for this subject domain.

Main issues

The course aims to introduce a broad theoretical framework, explaining the current context in which business innovation is related to Information and Communication Technology. In digital economies, it has become increasingly difficult to think business models which do not rely on ICT to obtain competitive advantage and build unique capabilities. A broad range of digital technologies are explored, from the Internet, cloud computing and mobile technology to software solutions and apps. In this context, the emergence of social media and social technologies calls our special attention considering their impact in businesses and society.

The course starts conceptualising digital economies and exploring strategies for obtaining sustainable competitive advantages, discussing relevant examples related to global corporations. The objective is to ground the discussions on relevant theory and contemporary facts. Fundamental concepts related to digital infrastructures and platforms are discussed through theory and examples. Basic concepts of how cognitive computing is integrated in collaborative platforms are introduced, aiming to explore the potential impact of these technologies in economies and in the workforce.

From this broad framework, the course evolves to introduce the emergence and diffusion of social media and social technologies, showing the impact of these tools in business organisations. The course introduces main concepts related to communication, collaboration, innovation and marketing and social media. Through exercises, students explore real case studies to understand social media, such as social networks, blogs, mini-blogs, mashups, file sharing, wiki environments, forums and virtual communities, reputation services, social bookmarking etc. Particular attention is given to the development of strategies which adopt social media and social technologies for delivering value and innovation.

In addition, students are to be introduced to the techniques and strategies of combining different media, building portfolios of social media which attend particular strategies.

SPORTS MARKETING AND SPONSORSHIP

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Vassilis Dalakas
Date	2/7-19/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: General knowledge of principles of marketing is recommended and will be helpful but it is not required.

Description of qualifications
Learning objectives for the course are for the students to:
- understand key sports marketing and sponsorship concepts.
- understand the research and theory of sports marketing and sponsorship.
- Understand the process of preparing and evaluating sponsorship decks.
- apply sports marketing concepts in the context of "real-world" examples.
- analyze and evaluate marketing practices of businesses and organizations in the sports industry.

Therefore, by the end of the course, students should be able to:
- define sports marketing and sponsorship concepts (knowledge).
- apply sports marketing and sponsorship theory and research to industry practices (knowledge and skill).
- Prepare and evaluate sponsorship decks (competency).
- link real-world issues to class concepts (knowledge and skill).
- analyze sports marketing problems and offer recommendations (knowledge and skill).

Content
Sports are appealing to millions of people throughout the world who enjoy participating in them and/or following them passionately as fans; as a result, sports is a strong global industry. Sports Marketing and Sponsorship examines aspects of the marketing of sports (to fans) as well as the marketing of any good or service through sports. Students will learn the theory and research pertaining to sports marketing and sponsorship along with how they apply to cases and practices in the sports industry. Examples and cases from international sports (e.g., Olympics, FIFA, UEFA, and the English Premier League) along with American sports (e.g., NFL and NBA) are incorporated within the course.

The course focuses on the unique characteristics of the sports product and it examines marketing strategies as they relate to the sports industry targeting sports fans.

Attention is given to understanding of environmental factors that affect marketing strategy, with a special emphasis on understanding motivations of fans and social identity theory in sports. Additionally, the course places special emphasis on understanding sponsorship (and related concepts like activation and ambush marketing) as part of how any brand can use sports as part of its marketing strategy to achieve its marketing objectives. Additional such tools covered in the course include licensing, sports endorsements, and stadium naming rights.

The topics in this course are:

Marketing through sports: Endorsements

Marketing through sports: Sponsorship research and theories

Marketing through sports: Sponsorship activation and ambush marketing

Marketing through sports: Preparing and evaluating sponsorship decks

Marketing through sports: Naming rights

Marketing through sports: Licensing

Consumer (fan) behaviour and sports fandom: Research and theories on motives for following sports

Consumer (fan) behaviour and sports fandom: Social identity and rivalries

Marketing of sports: Marketing strategies for sports properties (loyalty strategies, pricing, media, fan engagement)

GLOBAL ENTERPRENEURSHIP

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Nir Kshetri
Date	2/7-29/7

Exam type: Set home assignment (3 hours, administered online)

Academic prerequisites: None

Description of qualifications
At the completion of the course, students will be able to:
- Assess economic and formal/informal institutional factors affecting entrepreneurship in an economy.
- Identify entrepreneurial opportunities in economies across the world.
- Evaluate the obstacles and challenges in starting business ventures in economies across the world.
- Demonstrate an understanding of the interconnectedness among economies and regions of the world.
- Demonstrate sensitivity to cultural differences on a global scale from the perspective of entrepreneurship.
- Locate, interpret, and evaluate information on diverse global culture from the entrepreneurial angle.
- Evaluate new and evolving sources of financing new ventures
- Demonstrate an understanding of the key elements of an international business plan.
- Apply the tools and concepts learnt in the course to identify, evaluate, start, and manage international ventures.

Contents
Economies characterised by economic, social and political environments that are conducive to entrepreneurship provide more entrepreneurial opportunities and tend to grow and develop faster. Since business ventures are becoming increasingly global, an understanding of entrepreneurial environments of economies worldwide is crucial to exploit entrepreneurial opportunities worldwide.

In light of the above observatoins, this course examines: (a) how economic factors, physical factors, trade factors and formal and informal institutions affect entrepreneurship; and (b) how entrepreneurs create and manage business ventures that have international dimensions.

This course is multidisciplinary in nature and scope and provides broad global perspectives on cultures, nations and sub-nationalities in the industrialized and developing world from the standpoint of entrepreneurship. This course also examines how cultural, social, political, economic and historical changes taking

place in the world, especially in the economies in transition, affect entrepreneurial development. It places a special emphasis on inter-connections between regions through such mechanisms as global flow of goods, services, labor, capitals, technology and people; and the roles of supra-national institutions (e.g., the OECD). Case analyses draw on concepts, skills, and insights from such disciplines as marketing, operations, finance, control, decision-making, leadership, ethics, governance, negotiation.

The course will be organized around three major sections: (1) international entrepreneurship: drivers, performance, and impact, (2) entrepreneurship in economies with diverse economic and institutional conditions, and (3) cases related to international entrepreneurship.

The topics will include:

Global Entrepreneurship: The Current Status, Definitions, Types and Measures

The Entrepreneurial Ecosystem and Its Components

Sources of Entrepreneurial Finances and Their Variation across the World

Entrepreneurship in OECD Economies

Entrepreneurship in Post-Socialist Economies

Entrepreneurship in the Gulf Cooperation Council Economies

Entrepreneurship in Africa

Entrepreneurship in China

Entrepreneurship in India

Entrepreneurship in the Brazilian Offshoring and Outsourcing Industry

Mobile Payments and Entrepreneurship in Developing Economies

Preparing an International Business Plan

RETAIL MANAGEMENT

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	James Reardon
Date	22/7-9/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None: Although a basic Accounting and/or Micro-Economics course would be beneficial

Description of qualifications
Aim/Purpose: In today's tough job environment more people are choosing to become entrepreneurs. One of the more popular ways to do this is to start up a retail store – either physical or on-line. The main objective of this course is to enable students to develop a full retail plan that they can use to begin a new business venture. In the process, students will learn not only how to plan a retailer, but how to deal with retailers from a business-to-business relationship.

Learning Objectives
- Describe how the consumers' decision process affects retailers
- Understand how changes in operational variables (e.g., price, COGS, demand, expenses) affect profit
- Describe how technology in retailing affects all channel members
- Understand both the theory and practice of pricing merchandise at the retail level – Markups, Margins, Bundle Pricing, and Rebates
- Develop a retail strategy that appeals to a specific target market, which includes:
    - An initial proposal of retail type and geographic area
    - A complete analysis of the target audience – demographics, psychographics, and benefits
    - Store location analysis – it may be anywhere in the world.
    - Store layout and design – internal and external
    - Develop an assortment and merchandise mix (fill the store with products).
    - The development of a promotional plan to communicate your benefits to the consumer
    - Inclusion of a human resource plan for staffing the right people at the right time
    - A pricing and financial section – including the development of pro forma statements

Content
Introduction to the Retailing and Retail Types, Responding to and Targeting Consumers, Developing a Retail Strategy, Location Analysis, Store Layout and Design, Merchandising and Assortment Planning, Pricing Mechanics/Pricing Promotions, Margin Accelerators/Strategic Profit Model, Human Resource Management, Promotions and Advertising in Retailing

SYSTEMS THINKING AND GROWTH STRATEGIES

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Shayne Gary
Date	2/7-12/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
After this course, students should:

- Have acquired in-depth knowledge and understanding about the central concepts and theories of systems thinking and system dynamics modelling.
- Be able to apply systems thinking mapping and modelling tools to analyse growth strategies.
- Be able to make well-founded growth strategy recommendations using systems thinking concepts, theories, and tools.
- Have the ability to independently and systematically identify and explain the reinforcing and balancing feedback loops operating in different growth strategy situations.
- Be able to swiftly comprehend complex business growth strategy problems using a systems thinking perspective.

Content
This course uses leading edge systems thinking mapping and simulation modelling tools to enhance your ability to design and test growth strategies. You will develop simple simulation models of start-up enterprises and established firms and then run a variety of what-if computer simulations testing different strategies for growth. You will also convert a business simulation model into a Management Gaming Simulator.

We will discuss how self-reinforcing feedbacks drive new business growth and the adoption of innovations and new ideas. Using simple simulation models, you will examine the growth dynamics of businesses such as Airbnb, Uber, and What'sApp.

We will also discuss how policies adopted within growing businesses often unintentionally constrain growth. You will build a simple simulation model of a growing business and use the model to examine how a company should manage and coordinate policies to sustain growth. You will also explore how boom and bust growth dynamics arise and discuss how to manage such situations to avoid collapse.

On the topic of corporate growth strategies, we will discuss the feedback loops that determine whether growth by implementing a merger and acquisition strategy realises the potential synergy benefits. You will build a simulation model of a post-acquisition integration and examine how boundedly rational managerial policies can lead to unintended consequences. You will also use the simulation model to discover how to realise potential synergy benefits in mergers and acquisitions.

Throughout the course you will use simulation models and management microworlds to explore firm growth and stagnation, growing by implementing mergers & acquisitions, self-imposed limits to growth strategies, coordinating firm growth and capability development, and the boom and bust dynamics of start-up businesses. Examples will be drawn from a range of industries, including: airlines, global wine wars, the electric car industry, and social media.

STRATEGIC MANAGEMENT OF RISK

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Matthew Hollow
Date	2/7-12/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: The course is suitable for undergraduate level students with a general understanding of business principles.

Description of qualifications
Organizations today face an unprecedented array of risks, ranging from cyber-attacks to natural disasters to financial crises. Understanding the threat posed by these kinds of risks and working out strategies to manage them is thus of vital importance to organizations in today's business environment. On this course you will learn about the different strategies that organizations in different sectors have adopted to try and deal with such risks. You will also learn about the various challenges that organizations face when trying to design and implement effective strategies to manage risk.

Upon successful completion of this course, it is expected that the student will be able to:
- identify the different kinds of risks that exist for organizations in the twenty first century
- explain how approaches to the management of risk have evolved in recent years
- evaluate and reflect on the way that different organizations manage risk
- identify factors that can hinder the ability of an organization to successfully manage risk
- apply theories about risk management to real-life examples drawn from different sectors

Content
This course deals with the different strategies that organizations adopt in order to manage and deal with the various risks that exist in the contemporary business environment. While theoretical frameworks related to risk and risk management are reviewed on this course, the main focus is on real-life examples of how different organizations have sought to manage and deal with various kinds of risk. Moreover, while some of the most common contemporary risk assessment and modelling techniques are discussed, this course is primarily concerned with the broad strategies that organizations adopt in order to manage and deal with risk. As such, there is no expectation that students will need to engage in any kind of advanced quantitative analysis during this course or have any kind of background in such disciplines.

During the course students will look at a range of issues related to the management of risk, including:

- risk identification and perception
- risk management in a global context
- Enterprise Risk Management
- crisis management
- organizational culture and the management of risk
- risk management failures
- strategy-setting and risk management
- risk management in the financial sector
- risk management of mega-events
- risk management in the public sector

DEVELOPING MANAGERIAL COMMUNICATION COMPETENCIES: A CROSS CULTURAL PERSPECTIVE

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Neera Jain
Date	22/7-2/8

Exam type: Set home assignment (3 hours, administered online)

Description of qualifications
Knowledge
After completing the course, students will have developed knowledge about managerial communication in the following cross-cultural contexts:
- Cultural Intelligence (CQ)
- communication barriers
- communication styles
- non-verbal communication
- public speaking and presentation skills
- negotiation strategies
- writing messages for managing difficult situations
- creating powerful persuasion
- business and e-mail etiquette

Qualifications
By applying concepts and theories from the course, students will develop qualifications for:
- understanding and implementing the concept of Cultural Intelligence (CQ)
- developing communication sensitivity in organizations
- identifying and overcoming cross cultural communication barriers
- understanding different communication styles for managing trust and interpersonal relations in organizations
- appreciating and using non verbal communication effectively in different contexts and cultures
- sharpening presentation and public speaking skills for creating rapport with an audience in organization
- developing winning negotiation strategies by creating value for conflicting parties
- planning and writing persuasive and negative messages for managing difficult situations
- understanding the role of mindfulness by working on business and e-mail etiquette

Competence
The student has to:
- demonstrate knowledge and an overview of the different concepts, models and theories and tools covered by the course
- demonstrate a general understanding of the assumptions on which different concepts, models and theories are based

- demonstrate specific knowledge of individual concepts, models and theories in relation to specific situation at hand
- demonstrate a good understanding of challenges of choosing a particular approach during a specific situation
- analyse and understand the interplay of culture and communication in organizations
- analyse and understand the importance of non verbal communication sensitivity, public speaking and presentation skills according to cultures
- reflect on the necessity of creating value during negotiation with conflicting parties
- reflect on the necessity of creating negative and persuasive messages for managing difficult situations
- be able to deveop mindful attitude while managing business and e mail etiquette with diverse teams

Content
With the advent of new technologies, the world is no longer constrained by borders. With increased diversity, globalization, and fierce competition in and across organizations, professionals today face the challenge of communicating effectively and efficiently in a cross-cultural business environment. For being efficient managers in this global world, comprehending the nuances of communication across the globe is a pre-requisite for steering workflow and delivering results efficiently. In fact an altogether new set of communication competencies are required today to achieve success at managerial positions.

The course will draw on various communication frameworks, theories and strategies that are useful to manage communication across cultures. An effective communication strategy begins with the understanding that the sender and the receiver of the message are from different cultural backgrounds. Different barriers like pre-conception and stereotypes prevent communication from being effective. The course describes how using cultural intelligence, as an integrative communication approach, will help in overcoming these barriers and developing communication effectiveness across cultures.

The next part of the course starts by highlighting the importance of developing sensitivity towards non-verbal communication across cultures. Body language, para-language, sense of time and space may differ with cultures. The course therefore focuses on using mindfulness as a technique to understand and respect these differences. The course then moves on to describe different communication styles like passive, assertive, aggressive and passive –aggressive and how to flexi the style according to the situation. A few sessions will elaborate on how to build trust during interpersonal communication, speak with passion and conviction and present ideas in a diverse organizational setting

The last part of the course will emphasize on managing complex workplace situations through negotiation. Negotiation strategies for creating a win-win situation by creating value for conflicting parties are described in detail. The course will then work around how to write messages for managing difficult situations and creating powerful persuasion by using different frameworks. The course emphasizes on how to create an open dialogue and mutual understanding leading to better cooperation in teams and a more dynamic global workplace.

E-BUSINESS, OPEN COLLABORATION, AND NEW ECONOMY STRATEGIES

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Dariusz Jemielniak
Date	2/7-12/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
Knowledge
After completing the course, students will have developed knowledge about:
- e-business strategies,
- customer satisfaction and quality perception in new economy,
- three key strategic orientations (cost, quality, unique value) in the context of e-business,
- the three new customer paradigms (zero time, zero distance, full customization) emerging in new economy,
sharing economy principles.

Skills
By applying concepts and theories from the course, students will develop qualifications for:
- proposing an e-business strategy for a product,
- analyzing existing businesses technological strategies,
- identifying problematic aspects of a company's e-business strategy,
- developing suggestions for changing a firm's e-business strategy,
- developing strategies that build long-term and sustainable relationships with produsers in sharing economy.

Competences
In order to acquire the qualifications described above, students must:
- demonstrate knowledge and an overview of the different concepts, models, theories and tools covered by the course,
- demonstrate a general understanding of the assumptions on which the different concepts, models and theories are based,
- demonstrate a good understanding of the consequences of choosing a particular approach to the problems at hand,
- understand and reflect on a company's existing e-business strategies,
- analyse and reflect on the role of costs, quality, uniqueness, time, distance, and customization in a particular context,
- demonstrate an ability to make an appropriate choice of sharing economy community design
- demonstrate an ability to identify, evaluate and propose solutions to different e-business problems.

MANAGEMENT INFORMATION SYSTEMS IN GLOBAL BUSINESS ENVIRONMENT

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Dong-hyu Kim
Date	22/7-2/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: A basic understanding of business strategy and management and a basic knowledge of information and communication technologies.

Description of qualifications
Knowledge
After completion of the course, students will have developed knowledge about
- information management systems
- global business environment
- digital innovation
- platforms and standards
- information technology (e.g. Internet of things (IoT), big data)

Qualifications
By applying concepts and theories from the course, students will develop qualifications for:
- investigating how information technologies (IT) affect digital firms in the global business context
- identifyng opportunities and risks that managers in a wide range of organizations face as they attempt to use IT applications in order to add value to their businesses
- analyzing digital firms' platforms and global standards strategies
- discussing related business issues from a variety of stakeholder perspectives.
- developing suggestions for decision-makers who innovate and compete in the global business environment

Competences
In order to acquire the qualifications described above, students must:
- demonstrate a general understanding of different concepts, models and theories covered by the course
- demonstrate a good understanding of the consequences of choosing a particular theoretical approach to the problems at hand
- reflect on the necessity of initiating and implementing changes in a firm's IT strategy
- be able to use frameworks to analyze changes in the global business environment
- be able to develop suggestions for a company's innovation and competitive strategy in the global business context.

Content
This course studies the varieties of management practices across regions, and how business management can be conducted internationally. This teaching approach is, within dynamic global, regional and national contexts, to emphasize the interrelationship between international strategy, digitization and global operations.

The outline is

1: Introduction to information systems (IS)

2: Global business environment (case: Google in China)

3: Competitive and global strategy (case: Huawei)

4: Digital transformation (case: Internet of Things (IoT))

5: Technological foundations (case: artificial intelligence (AI))

6: Platforms and global standards competition (case: Qualcomm)

7: Electronic commerce (case: Amazon and Alibaba)

8: IS implementation and failure (case: HP and Hershey's)

9: System thinking and policy/business issue (case: Net Neutrality)

ORGANISATIONAL MIS-BEHAVIOUR

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Knut Laaser
Date	22/7-2/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: Prior knowledge in organisational theory, sociology of work and organizations is beneficial, but not required.

Description of qualifications
Students will begin by developing their understanding of the components of behaviour. The importance of prior assumptions in the perception of organisational behaviour and misbehaviour is emphasised.A key aim of the module is to identify and understand the habitual tendencies to misbehaviour found in different groups in the workplace. There are many signs that organisational Misbehaviour is becoming more widespread and diverse in recent, and it is no longer something that can be thought of as restricted to ordinary employees. Recent decades have seen the emergence of widespread managerial misbehaviour, which must also become the subject of scrutiny.

Knowledge
Understanding individual and group behaviour, and strategic HRM approaches to organisational strategy and change;
Understanding contemporary and dynamic organisational issues that shape strategy and change and organisational structure;
Understanding of business research methods and consultancy skills, and their practical application;

Skills and Competencies
- Identify the processes and problems of general management at the operational and strategic level;
- Identify and evaluate the global and environmental forces that influence organisational success or failure and the relationship between political, economic, social, technological, legal, ecological and demographic factors;
- Identify appropriate strategic HRM approaches to certain kinds of organisational misbehaviour;
- Provide well justified argumentation, critically reflect upon reached decisions and possible solutions and subsequently select between different business solutions concerning organisational misbehaviour.
- Consider the needs and interests of different stakeholders in organisations when solving business matters.
- Make academically well-founded recommendations and decisions.

Content

The course sheds light on particular preconceptions of organisational behaviour that framed if and how misbehaviour was researched, recognized and explained. Indeed, it is suggested that due to the dominant preconceptions much early research in this area missed out on nuanced understandings of organisational misbehaviour, and especially misbehaviour by managers themselves. It is very clear, however, from experience and from research that employees at all levels do not always think and act in conforming ways – especially in ways that those in authority imagine, plan or expect that they will. As will be shown, it is the mismatch of expectations between groups that frequently gives rise to distinctive patterns of organisational politics and distinctive forms of misbehaviour. Groups of employees have the tendency to respond to circumstances as they understand them and not as others expect. A key aim of the module is to identify and understand the habitual tendencies to misbehaviour found in different groups in the workplace. There are many signs that organisational Misbehaviour is becoming more widespread and diverse in recent, and it is no longer something that can be thought of as restricted to ordinary employees. Recent decades have seen the emergence of widespread managerial misbehaviour, which must also become the subject of scrutiny. One of the aims of the class is to educate students to become reflective practitioners in that they will engage in interrogating core theories with a keen eye on the reality of practice in organisations and employees that have to meet competing demands.

Main parts of the class

What is organisational Behaviour? (Lecture)
What is Organisational Misbehaviour and what triggers it? (Lecture)
Why study organisational misbehaviour? (Lecture)
Discussing empirical case studies on misbehaviour in the public sector and professional jobs (EU and USA) (Lecture & Seminar)
Discussing empirical case studies on misbehaviour in the service and retail industry (EU and USA) (Lecture & Seminar)
Discussing empirical case studies on misbehaviour in the service and retail industry (EU and USA) (Lecture & Seminar).
Discussing changing types of work organisation and rise of managerial misbehaviour (Lecture and seminar)
Customer misbehaviour (Lecture)
Innovations in organisational misbehaviour; Cyberloafing, online misbehaviour (Lecture and Seminar).
The problem of Misbehaviour for Management (Lecture and seminar).
Discussing strategies to deal with misbehaviour and identifying strategies and practices to prevent misbehaviour (Lecture and Seminar)

SMALL GROUP COMMUNICATION

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Amanda Lohiser
Date	2/7-19/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: Students should have a strong proficiency in written and spoken English.

Description of qualifications
In a recent Forbes.com article, Grant Freeland reflects on experts' opinions on success in business and basketball. He writes, "... success in today's business world depends more on collaboration and teamwork than on the performance of any single individual, even one considered a superstar" (Freeland, 2018). Whether you become an employee in an organization that hires thousands, or a self-employed business owner, being able to communicate and work well in a group is a soft skill that will get you ahead. This intensive, three-week workshop-styled course is designed to improve your group communication skills by addressing three key themes: 1) What is a group? 2) Becoming an effective group and 3) Motivating and leading groups.

The field of communication studies stresses critical thinking and how reality is created, maintained, or challenged through our communication practices. This course will introduce you to the theories associated with small group communication, examine how small groups function within society, and help you learn ways to improve the communication between you and members of the real-world groups to which you currently or will belong.

Learning Objectives:
To develop personal confidence to work with others as a team and to complete team projects, activities and presentations through collaboration, trust, mutual respect and personal advocacy toward accomplishing personal and group goals.
To foster an open academic discourse community by listening to and contributing multiple perspectives.
To celebrate and capitalize on individual differences and skill sets, and actively discover how those differences can foster the strength of a heterogenous group.
To negotiate a shared vision and to align creative energy toward group-developed goals while working in different types of management and leadership situations.
To engage in mindful dialogue and navigate conflict constructively to formulate alternative solutions to "real world" group problems within the scope of the group's goals.
To enhance critical thinking and academic skills while reflecting on, analyzing and using the various concepts studied in the course.

To grow as a self-directed learner by analyzing reading assignments, applying pertinent concepts to the group process and by assessing individual learning through quizzes, discussion responses and team assignments.
Learning Outcomes: More specifically, upon successful completion of this course, you should have gained proficiency in small group communication as assessed by these Learning Outcomes. You can expect that upon successful completion of all of these course assessments, you should have gained the following knowledge, skills and competencies.

Knowledge
After completing the course, students will have developed knowledge and understanding about:
The norms, life cycle, and types of groups
Theories and models pertaining to groups and group communication
Effective nonverbal and verbal communication and listening skills
Individual personality traits and how they pertain to group interaction
Critical thinking and creative problem solving systems
Group motivation, leadership and decision-making strategies
Value of diversity and cultural impact on groups
Navigating conflict constructively
Skills
By internalizing and applying concepts and theories covered in this course, students will develop the following skills:
Delivering a presentation and leading a class discussion as a group that is engaging, informative and well-organized
Effectively contributing your viewpoints and learnings to team and class discussions
Collaborating to create well-written products together as a team
Effectively navigating challenges and practicing problem-solving and decision-making as a team
Participating in a community-based experiential learning endeavor
Synthesizing information from the course and experiences of your own recollection as discovered through discussions held in class.
Competencies
To acquire the skills and knowledge listed above, students should demonstrate the following competencies:
Strive to obtain and demonstrate an understanding of the theories, tools and terminology covered by the course.
Practice the effective group communication strategies covered in the course.
Apply key concepts from the course to outside case studies and personal experiences
Transfer the skills you are learning about working cohesively in a small group to situations in which you must execute a task together
Synthesize the cumulative knowledge you have learned about teamwork to a creative outlet through which you accomplish a goal together as a group

ENTREPRENEURIAL VENTURING: AN INTRODUCTION TO CONCEPTS AND TOOLS FOR SUCCESS

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Nicole Siebold
Date	22/7-2/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: Previous knowledge is not required. Students from non-business departments are welcome.

Description of qualifications
Entrepreneurial venturing encompasses goals, strategies, and actions that entrepreneurs and managers envision, conceptualize, and implement to create a business and to ensure its survival, prosperity, and growth. Therefore, entrepreneurs and managers alike need entrepreneurial thinking to discover and create opportunities as well as management tools and structured processes to start and grow new ventures into thriving businesses.

In this course, students will learn how to transform creative ideas into business concepts. In particular, students will
- understand the nature of a business opportunity and learn how to recognize and create opportunities,
- receive insights into entrepreneurial decision-making and learn how and under which business circumstances decisions are made,
- gain knowledge about the concept of a business model and learn how to conceptualize businesses models that create economic as well as social value,
- understand the concept of value innovation and learn how to implement both value and cost leadership,
- learn analytical methods for opportunity and market analysis and gain insights into selected revenue models as part of strategic positioning and pricing,
- learn the principles of financial planning and the forms of financing new ventures, and
- receive insights into growth processes and crisis management as well as how to market business ideas with different forms of a business plan and pitch.

Content
The content of the class will be conveyed in ten self-contained parts that cover different topics along the process of entrepreneurial venturing. Each day of class one subject will be discussed, including an interactive lecture part, in-class exercises, group work and discussions as well as a take-home assignment. A reflection of the subject's essential learnings will be conducted the next day in class before a new subject is started.

STRATEGIC SALES

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Sterling A. Bone
Date	22/7-2/8

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
KNOWLEDGE AND UNDERSTANDING
Upon successful completion of this course students will be able to:
Map and align the customer buying journey and sales funnels to the selling steps and process.
Demonstrate a professional orientation toward personal selling through understanding theories and methodologies of persuasive selling.
Understand and recognize interpersonal influence strategies and their psychological and behavioral outcomes.

SKILLS AND QUALIFICATIONS
By applying knowledge and understanding from the course, students will develop skills and qualifications to:
Display trust-building communication practices that effectively sell ideas, products, and services "without making an enemy."
Analyze cases of different selling situations and to plan effective sales call plans and strategies.
Diagnose buyer's communication styles by recognizing verbal, nonverbal and situational cues to effectively adapt seller communication and sales strategies.

COMPETENCES
In order to acquire the skills and qualifications described above, students must:
Utilize information available in CRM (customer relationship management) technology knowledge (Salesforce.com) to recognize the next steps in the sales process
Execute a sales call with careful pre-call planning and research and move the sales opportunity forward in the sales process
Overcome buyer concerns, answer difficult buyer questions, and overcome buying objections in a professional, non-threatening way.
Complete the sale using integrity-based approaches to closing and obtaining buyer agreement.
Manage post-sale customer follow up to gather feedback, build loyalty, and to ask for and receive customer referrals.

Content
Participants are introduced to theories of personal selling and are oriented to the world of professional business-to-business (B2B) and business-to-consumer (B2C) sales and account management. Participants receive hands-on professional sales training on key selling and account management skills, including: initiating a conversation with a buyer, qualifying prospects, identifying the needs of buyer prospects, understanding key influencers among prospects and other gate keepers, communicating value-based solutions, adapting one's communication style, and active listening for verbal and nonverbal cues. Participants will utilize case studies, role playing scenarios with hiring managers at multinational companies, and logging strategic selling activities in a CRM database (Salesforce.com).

MANAGING THE FAMILY BUSINESS

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Julia K. de Groote
Date	22/7-2/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: Students should have basic knowledge of business administration, management, corporate governance, and strategic management ideally acquired by a bachelor`s degree in business administration, management, or related fields of study.

Description of qualifications
This course is directed at students who are members of a family with established business interests, will likely find themselves working for a family-owned firm, and/or might be associated with such organizations in a professional capacity through such roles as accountant, lawyer, banker, or consultant.
Learning objectives:
Understand the characteristics that differentiate a family business from other businesses
Understand the significance, diversity and complexity of family businesses
Understand and reflect on the uniqueness of the challenges facing both family businesses and business families
Understand and reflect on the different perspectives of various stakeholders associated with family businesses
Analyze the managerial and governance practices that can help improve the effectiveness and longevity of family firms
Understand the life cycles of family businesses from the perspective of business, family and ownership and apply this knowledge to analyze real world situations
Analyze family firm specific problems and situations in the context of real world problems and realistic case studies
Reflect on best practices and explore emerging trends in family business management and apply these to solve realistic case studies
Effectively understand family businesses when working for or with one in order to be able to make recommendations for complex problems

Contents

Family business management is an important topic, as family businesses constitute a significant segment of the global economy. Worldwide around 80% of all businesses are classified as “family businesses.”

Managing a family business can be especially challenging as family considerations add additional levels of complexity to the tasks of management and can make managing either easier or more difficult or in some cases both at the same time depending on the circumstances. Recent research has shown that family businesses, on average, outperform and last longer than non-family businesses. This course will introduce students to the peculiarities of family businesses and how to successfully manage them.

Topics include:
Definition and prevalence of family businesses
Governance in the family business
Strategic management in the family business
Family firms & innovation
Succession in the family business
Change and transgenerational value creation
Financial management in the family business
Relationships and conflicts in the family business

BRAND MANAGEMENT AND PRODUCT INNOVATION BY DESIGN: HOW BRANDS ARE USING DESIGN THINKING TO INCREASE CONSUMER ENGAGEMENT

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Sarah JS Wilner
Date	22/7-9/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: It is recommended that students have taken at least one introduction to marketing course; it is preferred, but not required, that they have had some course content in consumer behaviour.

Description of qualifications
The purpose of the course is to:
Provide an overview of brand management and new product development theories and principles
Introduce students to design thinking—the concept and process—and its use in action
Demonstrate how multiple aspects of marketing (e.g. branding, product development, packaging, retailing, marketing communications/social media and experiential marketing programs) are woven together in contemporary practice.
Illustrate the implications of marketing strategy on consumer response (e.g. engagement, loyalty)
Qualifications and Skills (Learning Objectives):

Students will gain understanding of key marketing functions in the context of organizational strategy
Students will master the tools of design thinking
Students will master basic qualitative research tools including observation, interviewing and data analysis
Students will strengthen their ability to develop, assess and choose relevant solutions for difficult, complex or ambiguous problems.

Content
1. Introduction to building Consumer-Based Brand Equity
a. cultivating consumer engagement in an age of abundant choice and reasonable quality

2. Brand strategy: the role of new products and brand extensions in
a. creating and maintaining brand relevance
b. creating competitive advantage

3. Introduction to design thinking: its foundations, applications and practices
a. consumer-centred design
b. innovation, opportunity identification and the importance of framing

4. Common new product development practices vs. design-led innovation
a. When to use different methods
b. Who should be involved? (cross-functional engagement; the role of organizational leadership)
c. Co-creating with consumers; the new role of influencers
d. Design for engagement: creating touchpoints that matter and products/services that adapt to/for consumer desires

5. Consumer responses to brand actions
a. Consumer psychology and the role of products in identity expression and development
b. Forging emotional connections with brands through experience
c. The role of brand ethos and values

6. Designing brand responses to consumer actions
a. leveraging fans and ambassadors
b. quieting or converting neutral or negative consumer responses

CREATIVITY AND INNOVATION

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Bennett Cherry
Date	2/7-12/7

Exam type: Set home assignment (3 hours, administered online)
Academic prerequisites: None

Description of qualifications
After completing the course, students will have acquired knowledge of the theory, methodology and practice of the management of creativity and innovation, which qualifies them to:
- understand and reflect on theories, methodologies and practice in relation to the topics of creativity and innovation in the workplace.

- assess theoretical and practical issues and apply relevant solution models to overcome the creativity blocks encountered along the way towards the creation of new products and services.

- both independently and collaboratively participate in creative activities, ideation sessions, opportunity identification and environmental scanning, filtering, selecting, and refining new venture concepts.

- identify own learning needs and plan own learning, as it relates to further developing capacity for creating and innovating.

Contents
The pursuit of new markets and new opportunities has caught the attention of business students throughout the world. While the desire to create wealth has often been cited as a main driver of entrepreneurial activity, new entrepreneurs also consider adding a social value creation element to their new ventures. At the heart of this entrepreneurial activity is innovation which is fed by creative individuals who recognize that today's problems are simply opportunities in need of solutions.

This course explores the impact of creativity on innovation and entrepreneurship. The first course module explores the creative process and is designed to encourage you to look inward, explore
outward, and uncover insights about your environment. In this module, you will be required to use creativity as a means to solve complex problems. The second module builds on the first by extending creativity to new idea generation and innovation.

hroughout this module, attention is devoted to the need for creative approaches in opportunity identification and business concept formulation when developing new products, services, and processes. The final module examines the nature of entrepreneurship and the impact of entrepreneurship both locally and abroad. In this module, you and your classmates will investigate the entrepreneurial process in a variety of contexts (market, social, intraorganizational, political, etc.). In addition, you will learn about new product development, venture creation, and the application of the Business Model Canvas.

Examples and cases from new ventures in Europe and the United States are incorporated within the course.

- The Entrepreneurial Landscape and The "Entrepreneurial Economy"
- Individual Differences and the Entrepreneur's Logic
- Creativity: Yes, you can start your own business
- Accessing and Acknowledging Creativity
- Creative Problem-Solving and "Answers in the Everyday"
- Identify the Pain
- Myths and Barriers to Creativity
- Boldly (and Humbly) Sharing your Ideas: Individual 1 for 3 Pitches to Small-Group Audience
- Creativity and Improvisation
- Creativity is Not Enough
- Opportunity Recognition, Filtering, Evaluation, and Selection
- Innovation: Defining and Describing
- Antecedents of Corporate Creativity
- Innovation and Intrapreneurship
- Principles of Innovation: Use the Past, Capture the Present, Predict the Future
- Innovation: Ethnography to Understand the User Experience
- Innovation: Repurpose It!
- Incremental Innovation and Product Refinement
- Innovation: Branding, Pricing, and Value
- Customer Development Process & Business Model Canvas
- The Pitch: Elements of Effective Pitching
- The Social and Ethical Entrepreneur

INTRODUCTION TO DESIGN THINKING: UNDERSTANDING CREATIVITY AND APPLYING INNOVATION IN REAL LIFE

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Dan Gilbert
Date	2/7-12/7

Exam type: A three-hour take home exam
Academic prerequisites: None

Description of qualification

Knowledge
Theoretical: Understand framework of Design Thinking methodology

Practical: Cite examples of cases where innovation and design thinking have led to breakthrough thinking.

Skills
Learn specific innovation strategies and skills that are used by leading organizations around the world, including:

- human-centered design
- user experience design strategies
- rapid prototyping
- creativity for strategic planning

Competences

Applying design thinking skills to other contexts. Speficially, students will learn to:

- Connect course work on innovation with real-life opportunities for current and future employers
- Share their work with peers and instructors at their home institutions in creative ways
- Lead design-thinking and strategy workshops for peers and colleagues to spur new thinking, uncover ideas, and change mindsets

Contents

Design thinking is an increasingly popular approach in all fields to identify transformative opportunities and solve complex challenges. Developed by leaders in engineering,

entrepreneurship, and creativity, design thinking is a human-centered process that has played a critical role in creating the culture of innovation in Silicon Valley and has helped organizations around the world improve.

This project-based course will give Aarhus University Summer University students the opportunity to improve and demonstrate their creative thinking skills in a rigorous framework. The course will be a modified version of the courses that Dan Gilbert has taught at Stanford University and the workshops he has led for leaders from education, health care, and industry around the world.

Working in teams, students will get hands-on experience in applying design thinking methods and strategies to real, relevant challenges with real clients. Students will then build connections between theoretical approaches and innovation that they can apply to their work at their home institutions and in their careers after university.

The first week of the course will cover the specific design thinking methods of needfinding, ideating, prototyping, testing, evaluating and iterating. During the second week students will test prototypes with real clients and complete user studies to get significant feedback.

BEHAVIORAL CORPORATE FINANCE

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Tom Aabo
Date	2/7-19/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: Corporate Finance or equivalent required

Description of qualifications
The purpose of the course is to give future corporate managers, financial analysts, and consultants an understanding of how managerial and investor psychology and sociology influence corporate finance.

There are two main learning objectives:

The first objective is to facilitate de-biasing of individual decision-making.
The second objective is to be able to identify and potentially mitigate/exploit the risks/opportunities that follow from biased decision-making among (other) corporate managers and investors.
More specifically, the student should be able to:

Understand the building blocks of basic psychology.
Relate behavior to evolutionary, cognitive, personality, and social psychology.
Identify behavioral factors that influence managerial decision-making (and financial markets).
Identify relevant empirical proxies for behavioral biases.
Assess the effect of behavioral factors on managerial decision-making (and financial markets).
Identify, assess, and potentially manage own behavioral biases.
Mitigate risks that follow from other agents' behavioral biases.
Exploit opportunities that follow from other agents' behavioral biases.
Be selective in terms of management tools appropriate for agency conflicts versus management tools appropriate for behavioral biases.

Contents

Traditional corporate finance assumes that managers and investors are rational and that capital markets are efficient. This is, however, often not the case. The behavioral approach to corporate finance relies on evidence from psychology and sociology of cognitive biases, heuristics, emotions, moods, framing effects, affect, social interaction (trust and fairness) etc. Behavioral Corporate Finance complements the traditional corporate finance models and provides the bridge – fills the gap - between the standard corporate finance textbook and empirical observations from the real business world.

Behavioral Corporate Finance identifies the key psychological obstacles to optimal behavior and provides guidelines to mitigate own obstacles and exploit other agents' obstacles in relation to

capital budgeting
valuation
M&A
real options
capital structure
dividend policy
corporate governance.

Thus, Behavioral Corporate Finance teaches students to use tools of corporate finance in a real-world setting where behavioral biases influence decision-making.

BANK STRESS TESTING IN PRACTICE

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Samuel Da Rocha Lopes
Date	22/7-9/8

Exam type: Set home assignment
Academic prerequisites: The classes consist of a presentation of the theoretical background, followed by a discussion of practical examples. Classroom participation is welcome and required.'

Description of qualifications
Learning objectives and outcomes
As learning objectives participants will be able to develop and carry out:

- a comprehensive stress test programme

- quantitative analysis

- extensive comparison with real-life banking cases and practical examples.

This will allow the participants to test the strength and resilience of portfolios, banks and financial systems as a whole in the worst scenarios and under sudden shocks.

To this end, the participants will:

- access to the data they need (e.g. Bloomberg); and

- work during class time (individual and group tasks; presentations);

- develop scenarios;

- take informed decisions about the resilience of banks as part of an ongoing process to identify and reduce vulnerabilities.

At the end the participants will be able to:

understand the key topics and trends regarding stress-testing exercises in banks and authorities;
analyse the drivers and results of the stress-testing exercises and its impact on financial institutions, in order to support strategic decision-making;
balance between stress-testing theory and practice, mixing key financial concepts and models with real life cases, enhancing the participants practical know-how.

Contents

Participants will gain a comprehensive insight into issues related to bank stress testing. The course provides an overview of the topic and covers both bank and individual portfolio stress-testing techniques, as well as system-wide stress testing, with practical exercises. The seminar will also highlight issues related to the regulatory requirements for stress testing.

1. Introduction to stress testing
Overview of the course
Concepts of stress tests
Macro stress tests versus micro stress tests
The role of stress tests
Implementation challenges
Comparison of stress testing methodologies for different risk types
2. Stress testing in Europe
Guidance given by the EBA and National Competent Authorities
Stress testing at portfolio, business and firm-wide levels
Senior management and board-level engagement
Experiences from the stress test exercises
Use of stress test in banks
3. Case Study – Applying stress testing techniques and methodologies
Introduction
Group work
4. Stress testing in US
Defining different scenarios
Translation into loss projections
Organisation and interpretation of outcomes
5. Reviewing banks' stress tests
Stress test portfolio, business and firm-wide levels
Data issues
Pitfalls and challenges
6. Bank case study
Case study – Applying stress testing techniques and methodologies analysis
Risk management and stress testing

ENTREPRENEURIAL FINANCE

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Frank Kerins
Date	22/7-9/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: Microeconomics, corporate finance, and principles of accounting through financial statement preparation and analysis. Corporate finance topics that students will be assumed to be familiar with include: risk, diversification, cost of capital, capital structure, capital budgeting, and information economics (including signaling and reputational issues). These topics will be reviewed as necessary depending on the background of the class. Valuation, financial needs assessment, and forecasting objectives require students understand balance sheets, income statements, and cash flow statements.

Description of qualifications
By the conclusion of this course, you should be able to:

Forecast Financial Needs - Use simulation and scenario analysis to analyze strategic financial options available to a firm, identify and communicate the optimal option, and estimate and describe a firm's financial needs based on the recommended course of action.
Identify and Evaluate Real Options – Qualitatively identify real options available with firms or projects, identify the parameters that are important to the valuation of the options, indicate how these options will affect the value of the project or the firm, and use quantitative techniques to provide approximate valuations for these options.
Value the Venture – Understand and be able to explain the difference between the venture valuation models and the standard corporate finance evaluation model from both the investor and entrepreneur's points of views.
Identify situations where the theories of financial management can be applied to decisions.
Recommend and justify decisions, including decisions arising from ambiguous or unfamiliar information.
Orally present your analysis, recommendations, and justification.

Contents

Main Issues

The objective of this course is to provide a better understanding of corporate finance issues confronting entrepreneurial firms. The issues will be explored by considering the differences between firms for which the standard corporate finance model is appropriate and firms for which the investment and financing issues are interdependent. An objective of this class is to further develop the framework used for thinking about finance issues and develop experience in applying this framework to making useful business decisions. Although the learning objectives will be focused on entrepreneurial ventures, they have direct application in more standard corporate, investments, insurance, and banking finance.

This class will take a pragmatic look at some of the financial issues confronting entrepreneurial ventures. The course uses an existing actual entrepreneurial venture to examine issues that arise with entrepreneurial finance.

In recent years: the major project in the course evaluated: the potential market size for an anti-infective that addressed potential complications associated with diabetic foot ulcers, the license value of an anti-infective that addressed infections with implanted orthopedic medical devices, the value of a Danish energy venture that uses energy from the sun to decrease the energy costs of cooling buildings by taking advantage of thermodynamic properties of vacuums, the value of products addressing the European and North American bovine mastitis markets, and the value of a company with products addressing the biofouling of ship's hulls (biofouling costs the US Navy at least $1 billion each year, likely more for Maersk shipping).

FORENSIC ACCOUNTING FRAUD ANALYTICS

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Dr. Mustafa Canbolat
Date	2/7-12/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: Calculus or equivalent and an intermediate-level statistics course covering inferential statistics and hypothesis testing.

Description of qualifications
Upon completion of the course, the participants are expected to:

Understand the importance and concept of forensic accounting and fraud analytics
Use a variety of descriptive, predictive, and prescriptive analytical models to evaluate data authenticity and identify anomalies.
Apply data analytics methods through the use of spreadsheets, R, and IDEA to assist in the external and internal audit processes.
Have necessary skills to develop a systematic way to analyze a large accounting data from defining the problem and data collection stage to the implementation stage.

Contents
According to the US Department of Justice's media brief in 2013, procurement fraud matters had a peak in fiscal year 2013. The department recovered $3.8 billion from false claims where more than $887 million of this amount was in settlements and judgments based on allegations of false claims and corruption involving government contracts. It is certain that these kind of fraudulent activities are not common but the cost is deadly. Therefore it is crucial to have a fraud detection mechanism in place.

Data Analytics, process of transforming input data into useful information through proper analytic tools, is relevant to all business professionals. This process enhances the decision makers' ability to use data effectively, in order to better understand the cases that they are dealing with, and to provide better, consistent, and to the point decision models to solve a wide range of business problems. This course is designed to introduce necessary tools and techniques to improve students' applied data analytics skills in the area of forensic accounting so that they will have the required knowledge and expertise to put an auditing mechanism in place to detect fraud, problems, or anomalies in accounting data. Students will learn both theoretical and practical sides of analyzing large data sets.

The course will have the coverage in the order given below:

We will provide some introductory details about the concepts of forensic accounting, auditing, and fraud.
We will organize data sets in Excel and R to better facilitate fraud analytics. We will discuss about handling missing values, treatment of outliers, standardizing data, etc. Higher level analysis such as reducing the number of dimensions in the data set by conducting principal component analysis will also be discussed.
We will discuss about Benford's Law and statistical conformity of data sets to Benford's Distribution. We will also deal with some other fraud detection tests that have connection to Benford's Law.
Further descriptive analytics techniques will be discussed next. Namely we will learn about basic data mining techniques such as clustering and association rules and relate the topics to fraud detection.
We will then put our attention to predictive analytics techniques. This part will take a large amount of time as we will be discussing multiple linear regression, logistic regression, decision trees, support vector machines, and neural networks to identify erroneous or fraudulent records in our data sets. We will first explain the topics in general, then relate them to fraud detection, and finally work on real data sets to implement the methods that we learned.
We will also discuss some of the recent scientific articles on fraud analytics. We will end the course with student project presentations.

CORPORATE GOVERNANCE

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Tatyana Sokolyk
Date	22/7-2/8

Exam type: Set home assignment
Academic prerequisites: None

Description of qualifications

The main objectives of the course are:
i) to provide an understanding of a corporate governance concept and corporate governance structures and mechanisms and how they relate to a firm's value and a country's financial development,
ii) to analyse the link between various corporate governance structures and observed differences in financial development across countries,
iii) to learn methodological challenges of conducting research in corporate governance, such as, endogeneity and causality, and how to address them when conducting research on corporate governance,
iv) analyze independently and in collaboration with others theoretical and empirical studies on corporate governance,
v) present the main findings and analysis of corporate governance issues in a clear and professional manner.

Upon successful completion of this course, it is expected that the student will be able to:
i) define corporate governance and governance mechanisms and explain their importance for firm value and financial development,
ii) demonstrate the knowledge of different governance mechanisms and explain how they interact,
iii) explain how corporate governance differs across countries,
iv) explain and apply the current theories and academic knowledge about corporate governance to real-world situations,
v) identify corporate governance problems in organizations, suggest and evaluate solutions to those problems.

Contents

Aim of the course

The main goal of the course is to develop an understanding of key corporate governance mechanisms and practices and their effects on firm value and economic development.

Main Issues

Corporate governance deals with how the suppliers of capital ensure that corporate managers make efficient use of that capital and provide investors with a return commensurate with the risk of the investment. Better governance lowers the cost of capital and leads to greater financial development and higher economic growth. Consequently, countries are searching for the set of governance practices, rules and regulations that will most effectively promote economic development. This course will study the main corporate governance mechanisms, such as, legal and regulatory protection, the market for corporate control, ownership structure, executive compensation policies and practices, the board of directors, and shareholder activism. We will analyze how corporate governance practices differ across countries and how they affect firm value and the development of capital markets.

ECONOMICS OF NETWORKS

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Stephen Ching
Date	2/7-12/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: Introductory Microeconomics (or equivalent)

Description of qualifications
The course introduces graph theory and game theory to the students and show the students how to use them to perform a systematic analysis of various network economic problems. It prepares the students to apply graph theory and game theory to other similar problems.

Learning objectives:

1. Master basic graph theory and game theory

2. Master a systematic analysis of network structures based on graph theory

3. Apply game theory and graph theory to economic problems in different networks

Contents
The world has become more and more connected since the appearance of the modern Internet in the early 1990s. The Internet allows buyers and sellers to match to each other directly or with the help of intermediaries. In a more connected world, buyers (sellers) can reach more sellers (buyers) and intermediaries can reach more buyers and sellers at the same time. It is not clear whether such change strengthens or weakens the bargaining power of the parties involved. Graph theory and (non-cooperative and cooperative) game theory are introduced in this course to shed light on these issues.

Graph theory can also help us understand link analysis and Web search. Building on this, game theory is used to provide an analysis of how sponsored search markets work. Other topics covered by the course include: information cascade, network effects, power laws, and rich-get-richer phenomenon.

INTRODUCTION TO DATA SCIENCE IN PYTHON

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Nick Rishøj Danmand
Date	2/7-12/7

Exam type: Set home assignment
Academic prerequisites: Students should have basic knowledge of statistics. Students are expected to have experience with some programming/scripting language.

Description of qualifications
This course has been designed to highlight the role of and equip students with skills in python programming towards data science. After successful completion of the course, students should be able to commit to python and understand how to utilize python for data science.
In particular, this course will facilitate the development of knowledge, skills and competencies in the following areas:

Understand and comprehend basic programming elements and learn how to solve data-oriented problems. This includes managing python environments, packages, documentation and execution.
Learn how to approach and solve data science specific problems in order to prepare “real life messy” data for analysis.
Learn how to utilize state-of-the-art modeling tools for various problems in order to support decision making.
Obtain the competence to work independently with data from collection to analysis within the python environment.

Contents
Today artificial intelligence and machine learning can be applied to support businesses in a range of areas, such as advanced email filtering, speech and image recognition and recommendation systems to provide personalized guidance. By analyzing data using machine learning techniques, one can provide better insight and solid foundations for decision making. Recently, a particular set of machine learning techniques, called deep learning, has advanced and contributed to scientific results beyond human capabilities.

This course focuses on the analysis of data to perform predictions using statistical tools and methods, providing learning capabilities for machines; hence machine- and deep learning. The aim is to introduce python and relevant tools applied for data wrangling/data munging, preprocessing, modeling and testing in python. The demand for python skills remains increasing as python provides wide possibilities of data processing and in particular data analysis using state-of-the-art techniques.

During this class, students learn about python from scratch, handling data and effective deep learning techniques and algorithms provided by scientific packages for python. Students gain practice coding and implementing these algorithms for themselves.
The course consists of two parts.

First part: Python basics

Syntax, variables, data-types, operators, conditionals, loops, functions and more basics.
Data preprocessing and feature engineering.
Importing, structuring, partitioning, scaling, etc.

Second part: Deep learning

Intensive introduction to deep learning algorithms for classification/regression.
Training deep learning algorithms.
Best practices for evaluating and comparing model performances and hyperparameter tuning.

BUSINESS INTELLIGENCE FROM WEB DATA ANALYTICS AND DATA MINING

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Hirotoshi Takeda
Date	2/7-19/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: None

Description of qualifications
The purpose of this course is to introduce the business student to the rapidly evolving area of business intelligence. The course is designed to develop knowledge in business intelligence for organizations. The course is an overview of the business intelligence process from data collection, to data analysis, to the realization of business intelligence. It focuses on concepts and methods associated with data collection including web analytics and open data, data analysis including social network methods, neural networks, and decision trees.

Objectives
Upon successful completion of this course, students will develop a broad appreciation for and a basic understanding of:
The overall framework of the business intelligence process
The range of activities associated with the business intelligence process including data collection and data analysis.
The nature of common data collection and analysis hazards.
The basic operation and limitations of business intelligence.
Security and privacy issues in the business intelligence process.
The data collection process from web based data collection, open data collection, to automated data collection.
The data analysis process including social network analysis, including centrality measures, and data mining techniques including decision trees, k-nearest neighbor, and neural networks.

Based on this understanding, students will develop qualifications and skills to:
Recognize and analyze the business intelligence process.
Understand the limitations of business intelligence.
Run data collection using data collection tools
Run data analysis using tools to aid in data analysis techniques such as data mining and social network analysis.
Garner useful, actionable information from the data presented.

Contents

The business world today is an ultra-competitive environment where different organizations are scrambling to find competitive advantage through business intelligence. Organizations are inundated with a huge amount of data in most fields. This valuable data is often languishing in databases and data warehouses. The problem is that organizations do not have enough trained human analysts to turn this data into knowledge.

This course provides an introduction to the business intelligence process, including data collection, data exploration, data mining, and data analysis. It is designed to familiarize students with data collection, storage, analysis, and gleaming actionable information from this data. The course focuses on topics such as web data collection, open data, web analytics, data modeling, data warehousing design, data mining development process, data pre-processing and exploration, analysis such as the k-Nearest neighbor algorithm, decision trees, neural networks, and social network analysis, etc.

Learning activities include lectures, case-based studies, actual web data collection, and demonstrations using the R software tool. The course does not expect students to have any computer programming skills.

Business intelligence, including the process of exploring large data sets in order to bring out knowledge and significant information they may contain, will empower firms to uncover useful patterns and trends from existing data sources. Organizations will use business intelligence to guide their actions and the decision-making processes.

DATA SCIENCE IN INSURANCE

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Prof. dr. Katrien Antonio
Date	22/7-2/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: It is expected that students have very good analytical skills and this offers a reasonable foundation for the course. The main pre-requisite for this course is to have some interest in insurance and its role within our financial system, probability theory and statistics, quantitative methods, analytics, and the implementation of techniques to analyze real life data with the statistical software package R.

Description of qualifications

By the end of this course, the student:
-Understands the basic working principles of insurance contracts;-Has insight in a taxonomy of insurance products and the specific features of life, non-life and health insurance products;
-Can explain ongoing evolutions in the design of insurance products and the analytic tasks involved, e.g. the design of telematics insurance products based on driving habit and driving style information;
-Can perform an insightful exploratory analysis of insurance data, through cleaning, summarizing and visualizing of the data;
-Understands the working principles of a wide set of predictive modeling techniques;
-Knows how to use modern predictive modeling and machine learning techniques to make insurance business decisions involving large data;
-Can translate the output of the statistical model to relevant business metrics, such as the risk premium of an insurance product (i.e. pricing) or the technical reserve of an insurance portfolio (i.e. reserving).

Contents
Insurance companies bring security to society by offering protection against financial losses. Through the pooling of similar risks, insurers allow to trade uncertainty for certainty by transferring the risk from individuals facing the loss to the insurer, in exchange for a premium. Non-life (e.g. motor, fire, liability), life and health insurers work in a data driven business, and are constantly confronted with the challenges created by rapidly increasing technical and computer facilities for data collection, storage and analysis. Predictive modeling (or: insurance analytics) is a cornerstone of the insurance industry.

The models should not only be competitive, but also interpretable by stake holders (including the policyholder and the regulator) and easy to implement and maintain in a production environment. Moreover, the design and pricing of insurance contracts is currently undergoing major transitions driven by the growing impact of new technical developments (e.g. black box devices, wearables and smartphone apps enabling usage-based insurance) and regulations at national and European level (e.g. the recent gender directive). These evolutions have timely high impact on insurance and thus, on the security it brings to society as a whole.

This course explains the working principles of insurance and the many tasks within insurance where predictive modeling is relevant. Starting from the features and basic actuarial mathematics behind elementary insurance products, you will first study typical characteristics of insurance loss data. The course then explains you a wide range of advanced predictive modeling and data science methods, and demonstrates their use in typical insurance tasks (e.g. pricing, mortality modeling or reserving).

This course is structured as follows: (27h in total)

Module 1 (6h): Basic principles of insurance
Risk and insurance;
A taxonomy of insurance products;
Predictive modeling tasks in insurance for life, non-life (P&C) and health insurance products;
Features of insurance data: claim frequencies and severities in the presence of risk factors, mortality statistics, health insurance losses;
Computer lab: intro to R, cleaning, summarizing and visualizing insurance data with R.

Module 2 (9h): The classic data science methods for insurance
The classic world of Generalized Linear Models (GLMs) for claim frequencies and severities, mortality and health insurance data;
From GLMs to GAMs: flexible effects of continuous and spatial risk factors;
Usage-based insurance: analyzing telematics insurance data;
Computer lab: putting the methods to work in R.

Module 3 (12h): Machine learning methods for insurance
Overfitting, bias-variance tradeoff, tuning parameters and resampling methods;
Sparse regression models: selecting relevant risk factors in insurance pricing;
Trees and forests: regression trees, bagging, random forests and boosting, challenging the classic
data science methods used in insurance pricing;
Computer labs.

FINANCIAL DECISION MAKING: A SIMULATION APPROACH

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Dr. Parvinder Arora
Date	2/7-19/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: The course has been designed for business/ finance students who have completed course on Corporate Finance/ Financial Management/Basic Finance/Introduction to Finance

Description of qualifications
The course aims at providing the student with an understanding of how corporate finance concepts are applied in real life and what can be implications of one decision on different aspects of company performance. This course builds on the concepts taught in Corporate Finance and focuses primarily on application of those concepts in a setting where students need to learn the impact of the decisions on short term as well as long-term performance of business organizations. Key decisions considered in this course primarily revolve around a) long-term investment decisions and capital budgeting decisions and how working capital management decisions can be into a strategic and value creating decision..

The course makes the students learn that no business decision is taken in isolation and what is important is to learn the interaction between various sub units of a business organization and how this interaction affect profitability and cash flow position of the organization. . It should be noted that this is not a course on 'Corporate Finance', rather an application of the concepts of corporate finance. This assumes the students have learned corporate finance concepts before taking up this course. Simulations will be the primary teaching tool for this course.

At the end of the course, the students should be able to:

Analyze the financial position of a company to identify the strengths and weaknesses of the company.
Prepare pro-forma financial statements and cash budget to assess the cash and external funding requirements of a business organization.
Analyze Cash Conversion Cycle (CCC) of a firm to estimate working capital requirements.
Explain the use of the concept of time value of money in capital budgeting decisions.
Understand the relationship between risk and return and its impact on cost of capital of the firm.

Contents

Analyzing financial statements of a company with a view to identify strengths and weaknesses of the company.
Revisiting concepts like TVM, Risk and Return and Cash Flow Estimation
Estimating Cost of Capital of the Firm and understand its usage.
Making Capital Budgeting Decisions- A Case Approach
Making Capital Budgeting Decisions – Learning through Simulation (Capital Budgeting Simulation)
Simulation Decisions and Discussion – Evaluating Performance (Capital Budgeting Simulation)
Interaction between sales decisions, purchase decisions and short term cash position of the Company-Cash Budget Application
Growth and Working Capital Decisions – Learning through Simulation (Working Capital Simulation)
Simulation Decisions and Discussion – Evaluating Performance (Working Capital Simulation)
Financial Decisions- Putting it together – Comprehensive Case

EXCHANGE TRADED FUNDS (ETFs) AND MUTUAL FUNDS

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Sandeep Singh
Date	22/7-2/8

Exam type: Set home assignment
Academic prerequisites: The course requires an undergraduate level knowledge of Finance as a pre-requisite. Students are expected to be proficient in time value of money concepts, basic asset pricing models like the CAPM, APT and factor models, and fixed income securities pricing prior to starting in this class.

Description of qualifications
Course Description
The course provides the student an ability to describe various types of mutual funds and ETFs. After successfully completing the course, the student should also be able to explain the key issues in the design and management of different types of mutual funds and ETFs. The course also provides the student with the ability to measure performance of funds and demonstrate an understanding of key issues involved with such funds.

Learning objectives
Compare and contrast the structure of an open-end (OEF) and a closed-end fund (CEF).
Explain the reasons for the tremendous popularity of investment companies.
Compare and contrast the structure of an Exchange Traded Fund (ETF) to that of a closed-end fund (CEF) and opened fund (OEF).
Describe the structure of an ETF. Highlight the reasons for the convergence of NAV and market price.
Students should be able to calculate and interpret risk-adjusted performance measures.
Describe the challenges in bond mutual fund investing.
Explain the classification of equity mutual funds and demonstrate the knowledge of empirical evidence in favor of passive investing.
Describe the technical aspects of international investing including emerging markets investing and currency management.
Explain the structure of and the reasons for the popularity of target date and other fund of funds.
Describe leveraged and inverse funds including challenges to correctly measuring performance of such portfolios.
Describe specific smart beta strategies and illustrate their use in managing mutual funds and ETFs.
Compare and contrast single factor and multi-factor models.
Illustrate the use of multi-factor models in managing portfolios.
Regulatory and policy issues in mutual funds and ETFs.

Contents

Characteristics of open-end, closed-end and exchange traded funds

Active v. passive investing

Risk based performance evaluation of portfolios

Empirical research and data analysis

Utilizing OEFs and ETFs in constructing, managing and rebalancing portfolios

Key nuances and issues in sector and specialty ETFs

Costs and managed portfolios

CAPM and multi-factor models in ETF design and management

Legal environment of investment companies

FINANCIAL CAPITALISM: THE BIG PICTURE

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Elias Bengtsson
Date	2/7-19/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: Students are recommended to have completed based Economics and/or finance at undergraduate level.

Description of qualifications
This course seeks to provide a holistic understanding of modern financial capitalism. It covers explanations to developments and cross-country differences in national financial systems across the globe. The focus is on how these systems are preserved or changed, through economic developments, power struggles, crises and interactions with broader social elements (political, institutional or technological factors). It also covers how financial systems interact with and influence the real economy and the broader society through both cyclical and structural channels.

A particular focus is to understand how financial systems have evolved since the global financial crisis, and the underlying factors driving those changes. Particular thematic topics (such as political and regulatory reform, FinTech, Shadow banking, Brexit etc.) are used to illustrate and explain where changes are occurring, and where they are more or less likely to occur in the future.

The course is explicitly interdisciplinary, and explanations for the above phenomena are sought in various academic fields, such as economics, management, institutional theory and international political economy. These theoretical perspectives are applied to a number of practical and current topics in banking and finance to illustrate their explanatory power as well as their shortcomings.

After taking this course, students should be able to fulfil the following learning objectives:

Provide clear explanations of how financial systems vary around the world, and how this relates to the wider institutional contexts in which they are embedded (relating to macro-social factors, industry practices, governance frameworks, regulation and political systems).
Critically discuss how various theoretical perspectives (economics, management, institutional theory and international political economy) explain differences in the structure and convergence in financial systems around the world.

Conceptually discuss how developments in particular areas (such as politics, FinTech, shadow banking etc.) have transformed financial systems in recent years, and how these developments may affect the future of financial capitalism.
Analyze how financial policy and regulation (or the absence of regulation) may benefit society or particular stakeholders, as well as its underlying drivers and how it can promote stability or change in financial systems.

Contents
When asked to think of a particular industry that operates in a free market, many tend to mention banking and financial services. But contrary to popular belief, banking and finance is among the industries with the most extensive and detailed regulation. And since regulation ultimately determines the distribution of risk and reward among the various stakeholders involved (the financial firms, their employees, the regulators and the public) - it also remains an area of fierce debate with strong ideological fault lines and political controversies. Not least since the stakes are astronomical – for example, millions of people in Europe and elsewhere are still suffering from the aftermath of the global financial crisis. These high stakes, the vast ideological differences and distributional consequences raise important question on the factors at play in shaping banking and financial system around the world:

How do financial systems vary around the world, and how does this variety relate to macro-social factors, governance frameworks, regulation and political systems?
How are financial systems maintained and transformed?
How have financial crises and other historical event influenced financial systems?
What political, social and technological forces promote stability or change?
Which stakeholders have the power to influence outcomes?
How do financial policy and regulation (or the absence thereof) benefit society or particular stakeholders, and how can it promote stability or change in financial systems?
What developments in political, social and technological areas are likely to transform the global and national financial systems in the coming years and beyond?
The course “Financial Capitalism: The Big Picture” seeks to provide answers these questions from an interdisciplinary perspective, where explanations are sought, compared and critically discussed from different academic perspectives (including economics, management, institutional theory and international political economy). This provides course attendants with a valuable holistic perspective on financial systems, which is beneficial for students who wish to complement their understanding of finance and financial systems with perspectives from other disciplines. This is particularly valuable for students aspiring to work in the financial sector, regulatory bodies, and public authorities, or on corporate finance issues in non-financial corporations. Course attendants will also gain more generic skills in summarizing, analyzing and critically discussing complex real-life issues from various perspectives.

INTERNATIONAL RISK SHARING AND FINANCIAL INTEGRATION

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Eleonora Pierucci
Date	22/7-2/8

Exam type: Set home assignment
Academic prerequisites: Students are recommended to have completed basic courses of Macroeconomics and Microeconomics.

Description of qualifications

Knowledge and understanding
This course will provide students with a deep understanding of international risk sharing from a theoretical, modelling and empirical perspective. It will provide an overview of the most relevant economic literature on the topic along with the necessary tool kit to deal with international and intranational risk sharing at empirical level.
More precisely students will have developed knowledge about:
-choices under uncertainty;
-open economies macroeconomics: trade across random states of nature;
-empirical tests of risk sharing: regression based approach;
-channels of risk sharing;empirical methodologies to risk sharing assessment;
the role of financial integration on risk sharing.

Qualifications
At the end of the course, students are expected to show an advanced knowledge of the theoretical framework, literature and empirical strategy. Students are expected to show a potential to elaborate a research project (suitable as a master level dissertation project) on international risk sharing and financial integration. They will be able to disentangle among theoretical approaches and empirical methodologies.
More precisely students will develop qualifications for:
-independently formulate a research question on risk sharing issues;
-frame research questions in the relevant scientific literature;
-identify and select the most suitable methodology to conduct an investigation on measurement and channels of risk sharing;develop strategies to deal with data and methods in risk sharing analyses;
-draw conclusions and critical discussions on empirical results;
-communicate and discuss the outcome of empirical analyses.

Competences
In order to acquire the qualifications described above, students must:
-Demonstrate knowledge of the different theories and methodologies in risk sharing analyses;
-demonstrate a general knowledge of the most relevant findings of the economic literature on risk sharing;
-demonstrate understanding of the theoretical assumptions of the models;

-demonstrate a good understanding of advantages and disadvantages of different empirical approaches
-demonstrate a good understanding of risk sharing mechanisms and determinants;
-be able to frame risk sharing issues into the literature;
-be able to choose the most appropriate empirical approach.

Contents
The course aims to provide an advanced knowledge on international and intercountry risk sharing. Precisely, it deals with choices under uncertainty and insurance mechanisms in international financial markets. Modern economics has raised a new and deeper attention to the issue of risk management, precisely, on how to cope with (to become resilient to) risk and absorb idiosyncratic shocks through risk sharing. It represents a great change on the point of view from which economists study and interpret economic phenomena and, consequently, design policy actions.

From a European perspective the study and the assessment of risk sharing have gained momentum since the inception of the global financial crisis which emphasized the weaknesses of the EMU (consistent heterogeneity of participating economies, lack of adequate insurance mechanisms; limited risk sharing through financial markets; absence of a fiscal channel of smoothing, restrictive budget policies). Indeed, monetary policies are not able to buffer the "asymmetric output shocks", while countries adhering to a union look at risk sharing as the ultimate goal of the union. On this line, The Five Presidents' Reports (2015) and the Investment Plan for Europe (2016) have raised attention on the need for mechanisms and institutions that might absorb shocks across countries and regions of the Union. To this aim, in September 2015 the European Commission launched the Capital Market Union action plan in order to building blocks of an integrated capital market in the EU by 2019.

Lesson 1: Introduction to course and to consumption choices under uncertainty. Open economies macroeconomics: trade across random states of nature-single small economy case.
Lesson 2: Global model and empirical implications. Definition and measurement of the welfare gains of risk diversification.
Lesson 3: International Portfolio diversification and the home bias puzzle. The role of non-tradables and intergenerational risk sharing.
Lesson 4: Sovereign risk and risk sharing with hidden information. Empirically testing risk sharing: the correlation approach.
Lesson 5: Empirically testing risk sharing: the regression based approach.
Lesson 6: Channel of international and intranational risk sharing. Channel of risk sharing at microeconomic level.
Lesson 7: Financial integration and risk sharing: literature review. Economic integration and risk sharing in the EU.
Lesson 8: Coursework.
Lesson 9: Coursework.

ECTS	10
Level	Bachelor
Lecturer	Name Name
Date	XX/XX-XX/XX

MONEY AND BANKING

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Georgios Chortareas
Date	2/7-12/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: None.

Description of qualifications
On completion of the course, you should:
demonstrate an understanding of the role of money in modern financial systems.
understand how the interest rates are determined, what are the factors affecting their behaviour and what is their risk and term structure.
understand the role of financial institutions and how banks are different from other financial intermediaries.
understand the role and functions of central banks and be familiar with the institutional structure of the major central banks and the way they formulate monetary policy
demonstrate an understanding of the various channels of monetary policy transmission

Contents
This is a course in the economics of central banking and financial institutions involving analytical economic reasoning and elements of macroeconomic and financial modelling. The aims of the course are:

to provide an understanding of how interest rates, money supply and central bank actions affect the decisions of economic agents, financial markets and prices.
to examine the recent trends and developments in domestic and international banking.
to increase students' awareness on the importance of monetary and financial policies for financial analysis.
to demystify central bank policies by developing an understanding of their purpose, organisation, function, and operations.
to introduce students to a number of recent developments and timely policy debates about financial markets and the role of central banks.

EMERGING INNOVATION IN FINANCE

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Abhay Kaushik
Date	22/7-9/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: None.

Description of qualifications
This course covers a variety of topics that are not only innovative, but also have wide ranging applications. The course covers three main topics: Blockchain Technology, Cryptocurrencies in general and Bitcoin in particular, and Crowdfunding.
The course provides the student a variety of tools to understand the mechanics and applications of Blockchain technology, Crowdfunding as a source of financing and the dynamics of Cryptocurrencies.
Learning Outcomes:
After completing the course, students should be able to:
-Understand the basics of Blockchain technology and how this technology can be applied to different businesses.
-Evaluate the role of Blockchain in transforming financial services and the challenges for incorporating Blockchain into financial systems.
-Understand and estimate value of a cryptocurrency.
-Evaluate the role of Blockchain in cryptocurrencies.
-Understand the challenges and regulations faced by Bitcoin and other cryptocurrencies.
-Evaluate initial Coin Offering, challenges and regulations concerning ICOs.
-Understand the concepts of Crowdfunding and able to evaluate different form of crowdfunding such as community crowdfunding, financial return crowdfunding, donation crowdfunding, reward crowdfunding, peer-to-peer landing, and equity crowdfunding.
-Evaluate procedures, costs, and benefits associated with different platforms that can be used for crowdfunding e.g. Indigogo, Kickstarter, and others.

Contents
Different aspects of emerging innovations in finance will be explored, discussed and evaluated. Some of the main contents include:
Basics of Blockchain Technology.
Applications and Future of Blockchain technology.
How Blockchain can be used to lower barriers to entry and create new & vibrant eco-system.
What are cryptocurrencies, mechanism to value crypto assets, and ICOs.
Basics of crypto mining, trading, and exchange platforms.
Why crowdfunding is better and efficient way to raise money.
Why to use one platform over the other, why to use one form of crowdfunding over others.
How Crowdfunding differs from angel investors and venture capitalists.

ECONOMIC AND FINANCIAL ASPECTS OF SPORTS

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	B. David Tyler
Date	22/7-2/8

Exam type: Set home assignment (3 hours)

Academic prerequisites: There are no defined course prerequisites, but students should possess a basic knowledge of business principles (e.g., revenues and expenses, supply and demand). Students who have taken an introductory finance course find this course easier.

Description of qualifications

The sport industry generates trillions of kroner per year in economic activity. Sport organizations have a growing need to employ individuals with sound financial management skills, and business managers across industries benefit from understanding the financial workings of this increasingly influential segment.

The course applies to all students. Though the context is sports, most of the course's economic and financial topics are core principles that transcend any one industry. For example, studying why it's in all parties' best interest for Christian Eriksen to play for Tottenham instead of Ajax teaches efficient allocation of assets (invariance principle), and the substitution effect helps us explain how mega-events like the Olympics yield zero net benefit for the host communities.

Learning objectives & outcomes
By the end of the course, successful students can...

Knowledge
- Understand how financial and economic principles (e.g., monopolies, labour markets, marginal gains) are manifested within the spectator sport industry
- Describe the role of governing bodies, and evaluate the impact and merits of certain policies (e.g., attempts to improve competitive balance)
- Identify the significant sources of revenue and expense for high-level sport organizations

Skills
- Calculate the value of cash flows over time (Time Value of Money) within the context of sport organizations, such as for player contracts or modes of financing sport

- Create solutions in Excel spreadsheets that would enable sport practitioners to make informed decisions (e.g., budgets, ROI calculations, player salaries, and data analysis)

Competencies
- Through a framework of sequential self-questioning, demonstrate attention to detail when solving practical sport finance scenarios
- Reflect on the capabilities and benefits of spreadsheet software, and on the opportunities for future personal and/or professional application
- Generalise knowledge and/or skills from the course to apply to other non-sport industries, such as those within the student's focal programme.

Contents

Below are the five primary course areas, each with examples of course topics. Topics are not studied sequentially or in isolation – each is interconnected with one or more of the others.

Financial/economic factors within the spectator sport industry – macro level
Structure and governance, closed vs open leagues (monopoly vs competition), ownership models and motives, competitive balance, regulation (e.g., Financial Fair Play, salary caps), Olympics and other megaevents

Financial/economic factors within the spectator sport industry – individual organization level
Sources of revenues and expenses, financing devices (e.g., equity, debt), funding player contracts, valuation of clubs and players

Time value of money (present/future values)
Algebra foundations, single payments, standard and delayed annuities, calculating ROI (return on investment) for long-term projects

Budgeting
Budgeting approaches (e.g., incremental, zero based), forecasting, capital budgeting (e.g., purchasing a new scoreboard for a stadium)

Data manipulation and analysis
Using spreadsheets (Microsoft Excel) for generating solutions to financial situations facing sport organizations

FINANCIAL ANALYTICS IN R

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Yuriy Zabolotnyuk
Date	22/7-2/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: Courses in Basic Math and Statistics and some proficiency with statistical software packages (e.g., R, Stata, SPSS, Matlab). Exposure to courses in Corporate Finance and Investments is not required but recommended.

Description of qualifications
The course will focus on developing statistical models and using simulations to better understand financial data using R, one of the most popular free computer software environments. Upon a successful completion of the course, students will be aware of major financial models related to investments and corporate finance and will be able to write simple code in R to implement the models in real-world scenarios as well as to visualize and analyze financial data.

The three main objectives of the course are:
1. to analyze some of the most well-known financial models (e.g., Binomial Model, Black-Scholes Model, Markowitz Mean-Variance Portfolio Model, CAPM) using historical data and code written in R language,
2. to familiarize students with application of statistical models and computerized algorithms to the financial market data and investment portfolios,
3. to create forecasted scenarios based upon historical data using simulations.

Upon successful completion of this course, it is expected that the student will be able to:
1. demonstrate basic proficiency of obtaining, manipulating, and analyzing financial data using code written in R,
2. identify future trends in capital markets by performing technical analysis,
3. calculate returns of individual securities and portfolios of assets,
4. measure risk of individual securities and portfolios of assets using various risk measures (variance, VaR, expected shortfall),
5. construct and rebalance equally-weighted and value-weighted portfolios,
6. calculate various risk-adjusted portfolio performance measures (Sharpe Ratio, Treynor Ratio, Information Ratio etc.),
7. implement models that explain variation in expected returns such as Capital Asset Pricing Model, Market Model, and Fama-French Three Factor Model,
8. perform stock event studies using R,
9. find optimal portfolios of assets using Markowitz Mean-Variance Portfolio Model,
10. implement Binomial Model and Black-Scholes Model for pricing options

Contents: See the course catalogue.

DATA ANALYTICS FOR ACCOUNTING: CASE-BASED APPROACH

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Dr. Arif Perdana
Date	22/7-2/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: None.

Description of qualifications
This course is essential in equipping students with the ability to understand the fundamental of data analytics and to visualize the data. This will include extracting, summarizing, filtering, joining, assigning data and create appropriate chart elements, using graphs, coordinates, as well as implementing principles of visualization designs to identify patterns and insight in data. Students will be able to make sense of and to communicate with data to relevant audiences. The course equips students with hands-on knowledge using popular data analytics tools (i.e., Caseware IDEA, Microsoft Azure Machine Learning, Tableau Prep and Tableau Desktop).

Contents
Data Analytics in Accounting and Business;
In this topic, students will understand how data analytics impact on business and accounting profession. Students, then, will be able to develop their analytical mindset that is relevant for their future career. The ability to address business problems via analytical mindset coupled with business context understanding is the distinct characteristics of accounting and business students.
Data Preparation and Cleansing;
This topic will guide students on how to understand the structure of data. Students will do hands-on work on data preparation. The hands-on materials will equip students with the ability to extract, transform and load data and how to validate and normalized the data for further analytical purposes.
Data Visualization;
This topic provides students with the explanation and hands-on materials on how to communicate their analysis via data visualizations. Students will be able to identify the purpose of their analysis and choose the appropriate charts to effectively communicate the analysis results to the audience.
Audit Data Analytics;
In this topic, students will learn how to dig deeper into financial and accounting data by conducting summarization, stratification, aggregation and disaggregation for auditing purposes. Students are also guided to find patterns and outliers using data visualizations.
Accounting Analytics.
This topic guides students with hands-on work on accessing and analyzing financial statements data. Students will understand the role of eXtensible Business Reporting Language (XBRL) as the enabler to conduct dynamic data analysis. Students will understand to analyze companies' financial performance and visualize them.

MERGERS AND ACQUISITIONS

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Damiana Rigamonti
Date	2/7-12/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: Recommended: Organization/industrial economy

Description of qualifications
The aim of the course is to provide the students with a strategic overview of the entire acquisition process, while offering also aspects of valuation and decision making. The course focuses on critical success factors across every stage of the process, such as acquisition reasoning, selection and evaluation of the partner, synergies recognition, post-merger integration, and social issues. Hence, it gives to the students the skills and knowledge for understanding domestic and international deals, evaluating the long-term potential of a partnership and the integration needed to fulfill that potential. Furthermore, the course aims to equip the students with the capability to critically observe and analyze the actual economic market, recognizing the potential and the problems behind real world firms' decision.

Successful participation in the course Mergers and Acquisitions provides the students with the tools to critically evaluate acquisition strategies and deal potential. The students are expected to learn the main firm's and market's aspects to be taken into account in the decision process, valuation, and implementation of domestic and international M&As. Hence, the students will acquire the knowledge and skills that are suitable for functioning in consulting firms, M&As adviser companies, international organizations, and national as well as multinational companies.

Contents
The first part of the course is planned to get the students into Mergers and Acquisitions framework by presenting the patterns of M&A activity and discussing the reasoning of acquisition choice. The teacher addressed the key factors of M&A success and failure, stimulating class discussion by proposing crucial questions like: "Why do M&A that looked great on paper fail in reality? Which are the main aspects that should be taken into account in the acquisition strategy? What does it take to make the synergies come to life?". Hence, managerial aspects and strategic decisions are discussed. The course offers also a detailed overview of elements of value creation and synergies, embracing fundamentals of resource sharing, knowledge transfer, and integration. The second part of the course digs deeply in the acquisition process, addressing one by one the main phases of a deal.

As such, the students are guided throughout the selection and evaluation of the target, due diligence, negotiation, valuation, decision about the methods of payment and financing, integration, and closure of the deal. Finally, the course embraces aspects of sociocultural integration and culture clash issues in the context of national and international organizations.

MAIN TOPICS
-Introduction to M&A activity
-Strategy and Value Creation in M&A
-M&A Process, Due Diligence, and Effectuation
-M&A and Companies' Valuation
-M&A and Sociocultural integration

DATA SCIENCE FOR BUSINESS INTELLIGENCE (DSBI)

COURSE DESCRIPTION

ECTS	5
Level	Bachelor
Lecturer	Dr. Bowei Chen
Date	22/7-2/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: The course is designed as an introductory course for third-year undergraduates in social science. Although the course is self-contained and fundamental mathematics will be reviewed, students are expected to have basic mathematics knowledge (i.e., calculus and linear algebra). No previous programming skills or experience is needed for entering this course

Description of qualifications
Business intelligence refers to technologies, applications and practices for the collection, integration, analysis, and presentation of business data in order to support business decision making. Essentially, it is a collection of data-driven decision support models. Data science studies the computational principles, methods and processes for extracting information and knowledge from various types of data. It has been successfully used in many fields such as economics, finance, marketing, psychology, physics, and engineering, to provide insights into data as well as to support decision making. This course teaches students analytical skills on empirical data by introducing popular data science methods to support decision making and evaluation in business. It uses a combination of lectures and workshops. The course emphasizes the practical applications and makes extensive use of Python for business data visualization and analysis.

Learning Outcomes - By the end of this course students will be able to:
-Explain the key concepts of business intelligence
-Identify types of analytics used in business
-Explain how data-driven decision making impacts business
-Explain the key concepts of data science
-Identify types of data
-Effectively use Python to process, summarize and visualize business data
-Display a comprehensive understanding of a wide range of data science methods
-Appropriately choose and appraise data science methods for specific business problems
-Obtain valuable insights from data science methods using Python on business data

Contents
Session 1 (3 hours)

Lecture: Introduction to Data Science and Business Intelligence (2 hours)
Workshop: Getting Started with Python (1 hour)
Session 2 (3 hours)

Lecture: Understanding Business Data Types and Structure (2 hours)
Workshop: Data Processing in Python (1 hour)
Session 3 (3 hours)

Lecture: Descriptive Statistics and Business Data Visualization (2 hours)
Workshop: Descriptive Statistics and Data Visualization in Python (1 hour)
Session 4 (3 hours)

Lecture: Review of Basic Mathematics and Linear Regression Models (2 hours)
Workshop: Performing Linear Regression in Python to Forecast Sales Responses to Marketing Actions (1 hour)
Session 5 (3 hours)

Lecture: Logistic Regression and Evaluation Metrics (2 hours)
Workshop: Performing Logistic Regression in Python to Identify Fraudulent Credit Card Transactions (1 hour)
Session 6 (3 hours)

Lecture: Naive Bayes and K-Nearest Neighborhood (KNN) (2 hours)
Workshop: Performing Naive Bayes and KNN in Python for Consumer Segmentation (1 hour)
Session 7 (3 hours)

Lecture: Decision Trees (2 hours)
Workshop: Performing Tree-Based Models in Python to Predict Hotel Ratings (1 hour)
Session 8 (3 hours)

Lecture: Artificial Neural Networks (2 hours)
Workshop: Performing Artificial Neural Networks in Python to Forecast Sales (1 hour)
Session 9 (3 hours)

Lecture: Support Vector Machines (SVMs) (2 hours)
Workshop: Performing SVMs in Python for Consumer Segmentation (1 hour)

DATA VISUALISATION AND STORYTELLING FOR BUSINESS

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Dale Fodness
Date	2/7-19/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: Students are expected to have a basic knowledge of descriptive statistics and some experience with Excel or other spreadsheet program. Programming experience is not required
Description of qualifications
This course provides an introduction as well as hands-on experience in data visualization and storytelling for business.
Upon completion of the course, students will be able to:
Describe the purpose, importance and uses of data visualization for various business stakeholders, including business intelligence and decision-making
Create static charts, interactive dashboards and data stories that effectively communicate the data's trends, patterns and insights in an engaging way to meet stakeholder needs
Find, access and prepare appropriate data to use to create visualizations that address stakeholder needs
Apply best practices for visual analytics, including choosing the right chart type for the situation and avoiding visualization techniques that can mislead
Use visual and cognitive perception concepts and practices to help ensure comprehension of data visualizations and insights
Design and create aesthetically pleasing data visualizations that adhere to best practices for user-oriented design
Demonstrate the ability analyze, prepare, and present effective visualizations using a leading data visualization tool (Tableau) (although the basic principles and practices learned can be applied to any visualization software).

Contents
The sheer amount, speed and variety of data available to business today can either overwhelm or drive breakthrough decisions crucial to business success and growth. Data visualization is a multidisciplinary discipline that provides the knowledge and skills necessary to transform data (big and small) into fuel for effective decision making through the powerful medium of telling stories with data.
This course is a hand's on introduction to the latest data visualization techniques and tools organized around key topics, including:
The context of data visualization
Data quality and preparation for visualization
Visual analytics
Design for user-oriented visualizations based on essential cognitive and perceptual principles
Preparing interactive dashboards and data stories that effectively communicate data insights to facilitate managerial decision-making.

STATISTICAL LEARNING WITH PYTHON

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Marcel Scharth
Date	2/7-12/7

Exam type: Set home assignment (3 hours)
Academic prerequisites: This course assumes knowledge of linear algebra, statistical inference, linear regression, and basic Python programing.

Description of qualifications
The objective of this course is to develop knowledge and skills for understanding and using statistical learning methods. The course emphasizes concepts, algorithms, statistical thinking, data analysis, and computation.
By participating in this course, the students will be able to:
-Identify and explain the key concepts and themes in statistical learning.
-Describe, explain, apply, and compare a range of methods for supervised learning.
-Use libraries such as Scikit-Learn, XGBoost, Keras, and TensorFlow to build machine learning systems.
-Implement machine learning projects using the Python programming language, including tasks such as data processing, feature engineering, and data visualization.
-Connect statistical learning methods to decision making problems.

Contents
How can machine learning help you to find interesting patterns in large datasets, generate scientific knowledge, automate complex tasks, and assist organizations in making better decisions?
This course provides an overview of key ideas and m in supervised learning from a statistical perspective. Starting from the essentials of decision theory, model evaluation, and model selection, the course will discuss basic methods such as linear regression and logistic regression, progress to regularized estimation, nonparametric regression, additive models, and decision trees, and conclude with advanced methods such as random forests, gradient boosting, support vector machines, and neural networks.
By following a statistical approach, the course will develop an overarching conceptual framework for predictive machine learning, discuss uncertainty quantification, and establish a connection to decision making problems that arise in business and policy contexts.
Projects and case studies based on regression and classification problems will address computation and applied topics such as feature engineering.

HOW BEHAVIORAL ECONOMICS CAN EXPLAIN SOCCER

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Ferran Armada
Date	22/7-9/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: Students must have passed an introduction to economics course, a microeconomics course is also advised.

Description of qualifications
This course provides an introduction to behavioral economics from a theoretical perspective, but also an example on how to apply that theory to analyze real life problems, industries and economic phenomena.

Learning goals
Know the main topics that might be interesting for an economist/ Business specialist in the sports industry: Production theory, discrimination and industrial organization, among others.
Critically review some facts and figures that make the sports industry one of the most profitable ones worldwide.
Learn and criticize the approach of the economist to this topic.
Learn how sociologists and other social scientists have found in professional sports an extensive and interesting source for different topics of study.
Approach a new core of literature specifically concerned with economics and business to professional sports.
Know new information sources related with professional sports and economics: databases, handbooks and statistical tools, among others.

Contents
Behavioural economics have been gaining relevance in recent years; it has a powerful set of tools that complement standard economic theory. This course in particular uses soccer as an illustration of theories and empirical evidence related with consumers' behaviour and its incentives. Soccer is probably the must popular professional sport in the world, it generates a sizable amount of information that can be systematize and help us to explore the validity of economic theories and in particular those of behavioural economics.

1. Introduction and first concepts
Behaviour and incentives.
Why soccer and economics.
Professionalization of sports.
Behavioural economics.
Size of soccer industry.

2. Supply and demand in behavioural economics. Sociology role on economics.
Beyond standard supply and demand analysis.

3. Consumers of soccer.
Monogamous consumers?
Rational consumption?
Do we love soccer as much as we say?

4. Markets of transfers
Market inefficiencies
Good performers in transfer markets

5. Why having a soccer club won't make you rich. Is it a big industry?
Human resources in soccer.
Profit maximization?

6. Game theory
Game theory as auxiliary tool.
What game theory hast to say about penalty kicks.

7. Home-visit
Is it playing at home a real advantage?
Factors of home-visit advantage.

8. Salaries in soccer
Determinants of professional footballers' salaries. What are we selling?

9. Hosting the world cup
Whose business is this?

ISSUES IN ENERGY AND ENVIRONMENTAL MANAGEMENT

COURSE DESCRIPTION

ECTS	5
Level	Master
Lecturer	Theodoros Zachariadis
Date	22/7-2/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: Basic knowledge of microeconomics and macroeconomics.

Description of qualifications

This course focuses on policies to manage energy resources in a world constrained by finite natural resources and global climate change. It equips students with basic knowledge of energy and environmental topics and calculation methods, so that students can combine this knowledge with their skills in economics in order to address energy management issues at different scales – firm, national and global level. The course highlights the importance of developing a long-term energy strategy, presents key indicators that are used to describe the energy system of a country or a firm and its environmental impact, provides the methods and tools to calculate such indicators, and outlines policy options for improving energy efficiency and promoting green mobility. Through a number of case studies, where students can apply microeconomic principles to assess the 'efficient' solution to an energy or environmental challenge, the course will demonstrate that real-world solutions to these challenges require a combination of economic and technological knowledge in order to address political and behavioural barriers and achieve progress towards sustainability.

On completing the course, students will be able to:

- Perform calculations at national and corporate level of:
  - energy system indicators (e.g. energy intensity, energy import dependency, carbon intensity, penetration of renewable sources in total energy and total electricity production, energy conversion efficiency)
  - the environmental impact of energy systems (in terms of emissions of carbon dioxide and sulphur dioxide).
- Understand the factors influencing the evolution of the above indicators and impacts.
- Conduct financial appraisals of energy investments by combining the use of economic data with basic knowledge of principles of energy conversion in order to calculate metrics such as the Net Present Value of an energy investment, the Internal Rate of Return of the investment, and the Levelized Cost of Energy Production for different power generation technologies.

Contents

1. Importance of energy for economy and society. Objectives of energy policy (competitiveness, sustainability, security of supply) and trade-offs between them.
2. Trends in global energy production and consumption by world region, sector and energy form – Implications for sustainability.
3. Energy balances & energy system indicators. Primary, secondary, final and useful energy. Calculation of emissions of air pollutants and greenhouse gases. Numerical problems.
4. Financial appraisal of energy investments – Calculation of the levelized cost of energy for different technologies.
5. Energy efficiency economics and policy – Limitations of technological approaches for assessing the real-world cost-effectiveness of energy policy options
6. Sustainable mobility – Policies to reduce energy use and emissions in transportation.
7. The 'energy-water nexus' – Interdependencies between production and consumption of energy and water and their prospects in view of climate change
8. Carbon footprint: Calculations and implications for the design of energy and environmental strategy at corporate and national level.
9. Case study 1: on the importance of energy for the economy: The cost of power outages from a real-world power plant accident.
10. Case study 2: Lessons from 'dieselgate' on the importance of regulatory and economic policies to promote environmental sustainability.

LEAN MANAGEMENT

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Felipe Martinez
Date	12/8-23/8

Exam type: Set home assignment (3 hours)
Academic prerequisites: None.

Description of qualifications
The course aims to provide students with overall knowledge about Lean Management. It introduces the philosophy, methods and techniques of Lean Management and it implements interactive sessions to apply the acquired knowledge.

Learning Objectives:

Upon the end of the course, students will be able to:
explain the basics of Lean Management approach and the basics of Lean Management philosophy;
express the basics of TPS 14 principles, including relations with the Lean Management tools;
select the ideal Lean Management tool (Lean Management ToolBox) based on the situation;
identify waste in processes;
describe processes using a variety of methods and techniques (e.g., layout, VSM, etc.);
apply different processes' calculations (Kanban, tact time, cycle time, etc.);
plan different aspects of the warehouse, including the handling of goods;
apply various methods and techniques of Lean Management in isolated situations as well as in complex solutions for improving the efficiency and effectiveness of the main and supporting processes of the organisation;
interpret calculations of processes, processes' layouts, VSM of processes and other outputs from Lean Management tools;
review own developed solutions for improvement.
This interactive course belongs to our minor specialisation "Quality Management and Lean Six Sigma". The course has the same level as any commercial course for Lean Six Sigma Yellow Belt Certification.

Contents
This interactive course has the same level as any commercial course for Lean Six Sigma Yellow Belt Certification.

Basic principles of Lean Management, linkage to other areas of management. History. Lean Manufacturing, characteristics of manufacturing systems from the point of view of current customer requirements, connection to Six Sigma methodology.

Toyota Production System. Pull principle, 14 principles, 8 types of waste.

Kaizen as a philosophy of improvement. Cycle, tools, documentation and methods. 5S, 5Why, A3 Report, Jidoka, Poka Yoke. Team work and team engagement.

Process disconnection point through customer order. ABCXYZ method of supply management. JIT, JIS principles and Kanban.

Kanban circles and calculations.

Innovation and value added for customer. Value stream. Principles of functional and value analysis of products.

Optimization of product portfolio. DFMA (Design for Manufacturing and Assembly).

Production layout, process and logistic approach. Layout of production cell. Warehouse layout.

TOC (Theory of Constraints) principle and DBR (Drum-Buffer-Rope) methods.

SMED (Single Minute Exchange of Die) principles. TPM (Total Productive Maintenance) principles.

Tact Time, Cycle Time, Target Cycle Time. DTD (Dock to Dock Time).

Measuring performance, OEE (Overall Equipment Effectiveness). PDP.

New trends in Lean Management, significance of competitiveness and potential for improvement in processes and products.

SIX SIGMA DESIGN AND INNOVATION

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Stefano Barone
Date	22/7-9/8

Exam type: Set home assignment
Academic prerequisites: Sigma approaches are commonly applied in team projects so that it is helpful to have experience working in team. Similarly, Six Sigma integrates knowledge and strategies from quality management, engineering, business management, and statistics so that it is helpful to possess a basic vocabulary from each of these areas. Much of Six Sigma methodology and practice is statistically oriented, so that basic statistics is assumed for granted (materials will be provided for self-review for the benefit of those who may need a refresh). A refresh of basic stats tools and software for Six Sigma will be part of the course.
The course is also directed at MSc in Marketing and Business Innovation students (cand.merc.). Students from this study program must apply via the AU Summer University online application system. They must upload a transcript of results (instead of the pre-approval that the system asks for).

Description of qualifications
Upon successful completion of the course participants will understand and will have applied Six Sigma approach to a meaningful project. Student knowledge will be coherent with the "Six Sigma Black Belt Body of Knowledge" formulated by the American Society for Quality (ASQ). Students will also appreciate the differences and the synergy between Six Sigma and Lean Production approaches. Among the skills and tools, those successfully completing the course will become familiar with project management, quality function deployment, variation mode and effect analysis, and failure mode and effect analysis.

Contents
COURSE AIMS
-Six Sigma has developed largely in parallel with and complementary to Lean Enterprise Theory & Methods with a result referred to as "Lean Six Sigma" wherever innovation in design of products, production processes and services are approached through a "lean lens" that is highly resource sensitive or a "lean and green" lens that, additionally, embeds social and ecological considerations and "algorithms" are used like Define-Measure-Analyze-Improve-Control (DMAIC).

- Integrated Design, Innovation, and Lean approaches provide highly structured and complementary strategies for acquiring, assessing, and activating customer, competitor, and enterprise intelligence that lead to superior product/services, systems or enterprise innovation and designs that are intended to meet and surpass stakeholder expectations, thus driving an enterprise's quest for a sustainable competitive advantage. This is accomplished through strategic linkage of customer-driven, highly resource efficient approaches that yield nearly perfectly performing processes and products.

MAIN ISSUES
- Six Sigma integrates strategies and techniques from Statistics, Quality Management, Business Management, and Engineering and has added billions of dollars/Euros to enterprise bottom lines across financial, healthcare, military, manufacturing, and other economic sectors. Its focus divides into two significant branches – innovation and design – that share a number of tools, techniques and objectives, but that often apply the tools and techniques differently, owing to their differing objectives. The Innovation branch of Six Sigma focuses on significant innovation/redesign in or of existing products, processes, and systems while the second branch, referred to as Design for Six Sigma, is directed at the design of new products and processes.
- This course provides an overview of the most commonly used Six Sigma approach called DMAIC, along with integrated consideration of a limited selection of supporting techniques. In general, we approach the subject as one dealing with a value continuum that spans the range from recovery of value sacrificed to poor practices, poor processes, poor partnerships, ad infinitum to creation of new value.
- Course content will mainly be presented in discussion format with the expectation that course participants will practice some methods in small groups. Topics addressed include:
- Introduction to Six Sigma, Lean Production and their relations
- Basic Statistical Techniques and software
- Six Sigma project selection
- Team work
- Process orientation, SIPOC, Value Stream Mapping
- Project management basics
- Six Sigma for Innovation & Design
- Understanding variation (funnel, red bids, catapult experiments)
- Working schemes (PDSA, DMAIC, ...)
- Diagrams, Interrelationship Digraphs, Matrix Diagrams
- Statistical Process Control and Capability analysis (basic concepts)
- Creativity Tools for Innovation & Design
- Measurement System Analysis (MSA)
- Regression analysis
- Fault tree analysis and Failure Modes & Effects Analysis (FMEA)
- DOE principles (selection of factors, blocking/ randomization/ replication) and ANOVA
- Robust Design
- Variation Mode and Effects Analysis (VMEA)

CISG

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Morten Midtgaard Fogt
Date	29/7-23/8

Exam type: Oral (20 minutes)
Academic prerequisites: General knowledge of domestic law of obligation, including formation of contract and sales law.

Description of qualifications
Learning purposes of the course:

On the basis of the recommended and/or other literature on the CISG the students must be able to:

describe and understand the structure, basic principles and rules of the CISG,
apply the conventions´ rules and principles,
identify and qualify international contractual and sales law problems and conflicts,
analyse and solve international contractual and sales law problems and conflicts,
structure the solution of one or more concrete cases logically and reasonably,
find relevant factual circumstances and ignore the irrelevant circumstances by solving one or more cases,
formulate the solution in a reasonably understandable legal English in an oral exam.
Aim of the course:

The aim of the course is firstly, that during the course the students gain:
a profound knowledge of the rules and principles of the CISG,
a reasonable knowledge of the international theory and jurisprudence on CISG
and an understanding of the comparative terminology used.

Secondly, after the course the student must be able to:
identify, analyse and estimate contract formation and sales law problems,
and furthermore give a reasonably grounded proposal for solutions thereof.

Contents
Description of the course:

During the course, the student will be introduced to, and gain confidence with, the structure, principles and rules of the CISG and at the end of the course must be able to apply the CISG to concrete cases.

The whole convention and its rules will be examined and the interplay between the general part I and part II and III will be emphasised and analysed.

Moreover, the students will be introduced to the connected issues of Private International Law (choice of law), which will be relevant by external and/or internal gaps in the CISG (gap-filling), and questions of jurisdiction.

As far as possible, a comparison with domestic law and international principles, like the PECL, UNIDROIT Principles and DCFR, will be made.

Execution of the course:

-The course will concentrate on the following main legal topics:

-Field of application of the CISG and in particular the CISG reservations,

-The interplay between the CISG and P.I.L., questions of jurisdiction and domestic law,

-General principles of the CISG and their application (part I),

-Formation of contract (part II),

-Rights and obligations of the parties (part III),

-Passing of the risk and agreement,

-Remedies by breach of obligations.

CIVIL LAW IN THE DIGITAL SINGLE MARKET

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Morten Midtgaard Fogt
Date	29/7-23/8

Exam type: Oral (20 minutes)
Academic prerequisites: None.

Description of qualifications
Learning objectives: The aim of the course is that during the course the students gain:

a profound knowledge of the impart of national law on the use and distribution of digital services and digital contracts;
a reasonable knowledge of the international or EU-regulations on the use and distribution of digital services and digital contracts;
ability to explain and discuss legal problems and issues regarding the use and distribution of digital services and on digital contracts within a specific chosen topic;
Learning purposes of the course: On the basis of the lectures, written paper and recommended and/or other literature the students must be able to:

Describe and understand the general principles and regulations in their national law on the specific legal topic chosen;
Compare this to the national law of another country or to the EU-regulations on the legal topic chosen;
Explain and discuss the content of the national law or EU-regulations on the legal topic chosen and discuss comparison the anther national law (German law);
Give a presentation in English and be able to discuss and compare national law and EU regulations in an oral exam.;
Formulate the presentation in reasonably understandable legal English in an oral exam.

Contents
Digital technologies are changing our societies with a lot of benefits for our quality of life and economic growth. But all that glitters is not gold: New technologies present new challenges. The European Commission is working on their digital Single Market Strategy to foster the use and distribution of digital services in the Union. But the differences in the member states civil law still inhibit that more services are purchased and used cross-border. In this summer-school we'll bring together students from Aarhus and Kiel to discuss how their national law gives answers to questions arising from the use of digital services.

The course is open for all law students at the master level.

Content of the course and list the main topics:

Harmonization of sales law and the proposal for a common European Sales Law - with focus on digital contracts
Purchasing digital goods in the single market - state of harmonization
The directive on certain aspects concerning contracts for the supply of digital content (COM(2015) 634 final) – One step forward?
Minors and their contracts with social networks providers (applicable law, effectiveness, type of contract)
Sorry, I didn't order the milk. It was my fridge! – The effectiveness of contracts concluded by smart devices
The smart light bulb – device or software service? (applicable law, type of contracts, claims of defects)
Written contracts and other formalities in consumer protection law
Google I need an update! - Software manufactures and their obligation to publish updates
Liability for autonomous driverless cars
Personal data – the new currency for digital services?
Inheritance of social network accounts

LEGAL ASPECTS OF CORPORATE GOVERNANCE

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Mariangela Iannaccone
Date	22/7-9/8

Exam type: Oral exam (20 minutes)
Academic prerequisites: It is expected that students have some knowledge of corporate law.

Description of qualifications
At the end of the course students will be able to:
-Demonstrate deep knowledge of the main theories and legal issues in corporate governance
-Identify and understand mechanimsms, processes, and practices by which a corporation is managed and controlled and factors affecting governance strategies.
-Analyze the impact of the financial crisis and markets' globalization on the recent significant challenges in corporate governance
-Critically reflect on the legal strategies and positions put forward by regulators and firms

Contents
This course has been designed for those interested in corporate governance from a legal perspective.

Corporate governance is the system by which companies are directed and controlled. How a company is governed influences rights and relationships among management, shareholders and stakeholders and how an organization is managed will impact on her success or failure.

The course illustrates how the separation of ownership and control produces agency costs and the ways in which corporate law seeks to tackle these costs through strategies like disclosure, fiduciary duties, shareholder activism and hostile takeovers. We will describe how agency problems arise and manifest themselves in the corporate context and then we will explore the range of alternative legal responses that are available. We will illustrate the different legal policies, including their merits and limits, adopted by some representative jurisdictions and we seek to address causes and consequences of these differences.

Throughout the course, we will also understand how the 2008-2010 financial crisis and the economic globalization and the increasing integration of capital markets has affected the recent developments in corporate governance.

The course will enable students to engage critically with key debates in contemporary corporate governance and provide relevant background for those interested in legal work.

ARBITRATING IP AND COMPETITION POLICY DISPUTES IN THE AGE OF DIGITALISATION

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Kalpana Tyagi
Date	22/7-9/8

Exam type: Oral exam (20 minutes)
Academic prerequisites: Students have ideally participated in courses in competition law, intellectual property laws, mediation, market laws - but it is not a demand.

Description of qualifications
The course is based on lectures as well as discussions in the class and cases. The primary aim of the course is to give the students a knowledge and understanding of arbitrating competition policy and IPR-related disputes in the age of Digitalisation. Specifically, after passing the course, students will be able to:

Discuss and debate the public policy issues in resolution of competition and IPR-related disputes;
Argue (for and against) - how different dispute resolution mechanisms such as mediation and arbitration ensure timely dispute resolution and facilitate innovation in the digital economy;
Assess the impact of digitalisation on issues such as Investor-State Arbitration.
In particular, the students should be able to:

Clearly identify different kinds of licensing mechanisms for arbitrating SEPrelated disputes (such as used-based licensing) and convincingly argue for (or against) the application of these tests;
Handle and understand the importance of issues such as rise of the digital economy, the internet of things and the impact of these innovations on Investor State Arbitration;
Identify and assess the reasons for arbitrating (or not arbitrating) IP- and competition policy related disputes;
Understand and appreciate factors that have led to this supra-national paradigm of competition and IP-related arbitration in the Digital Age;
Discuss, analyse and reflect on the importance of emerging technologies such as the blockchain technology and how these technologies in the era of Internet of Things, by developing a 'ledger of things', will form an important piece of evidence (not only for arbitration, but also the courts);
Discuss and appreciate how the emergence of the blockchain technology and smart contract in particular, may impact dispute resolution in the age of digitalization.

Contents
This is an advanced master-level course designed for students with an interest in ADR's in general and arbitration in particular, and who are seeking to practice in the domain of dispute resolution in the field of IPRs and competition law-related disputes in the age of digitalisation.

Course Content

1. ADRs and Competition and IPR laws: A Public Policy Dilemma? In these lectures, we discuss case laws such as EcoSwiss and MasterCard (EU) and Mitsubishi (in the US) that clearly established the arbitrability of competition law related disputes.

2. Follow-on damages and arbitration: What are implications of the Damages Directive for private enforcement through mechanisms such as the ADRs?

3. Emerging alternative and innovative mechanisms for funding of arbitration disputes such as third party funding: Issues of ethics in funding through third party funding.

4. By the year 2020, about 29 billion devices will be IoT-enabled creating in total an economic impact of over $11 trillion worldwide. Against this challenging and dynamic backdrop, this course seeks to familiarize the students with the following key issues in arbitration:
1. The 5G Ecosystem, digitalisation and how it has led to newer challenges for investor state dispute resolution and the conflicting issues that arise against this challenging backdrop
2. Resolution of IPR-related disputes: Implications of decisions such as Huawei v. ZTE; Unwired Planet and Ericsson v. DLink for resolving SEP and FRANDly licensing disputes in the era of 5G
3. Quick resolution of disputes and claims under the damages directive
4. Competition policy (and particularly merger control) related arbitration in the digital sector (where licensing commitments, such as in case of pay-TV programmes lead to frequent disputes between the licensor and the licensee). Here in particular, the students will be initated into some practical case laws in recent times (such as the landmark arbitration by the ICC in RTI v. Sky) that concern institutional arbitration in merger-remedy related arbitration and class action arbitration (collective arbitration).

AMINAL LAW

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	Sacha Lucassen
Date	2/7-19/7

Exam type: Written + Written (2 hours)
Academic prerequisites: An introduction to law and politics of the European Union is an advantage but not a necessity.

Description of qualifications
At the end of the course, students will have:
the theoretical and practical tools needed to be familiar with legal measures taken in relation to animal protection, so that the students will have a comprehension of how laws on animals work in this specific and novel material; i.e. how to acquire and apply critical knowledge for anyone interested in working as a lawyer or a consultant in the area.

Contents
What rights do societies afford to animals within their respective legal systems? This will be the main question dealt with during the summer course in Animal Law.
Animal Law is an emerging field of law which explores the legal protection of the social and biological needs of animals. Legislation that protects, impacts, regulates, and controls animals has been an integral part of the legal system since the very early days. However, the distinct field now known as “Animal Law” is a relatively new development. Animal Law brings together statutes and cases from multiple fields of law that consider, at their core, the interests of animals or the interests of humans with respect to animals. Although the role of animals and societal perceptions of them have changed over time, those factors remain at work in modern statutes and litigation. As a result, a particular animal may receive more or less protection under our laws depending on that animal’s role in society.
The Lisbon Treaty (2009) states in a stand-alone article that animals are considered to be "sentient beings” and requires the EU and its member states to "pay full regard to the welfare requirements of animals". Sentience means that animals, just like humans, are able to experience pleasure and pain. Nevertheless, we raise animals for companion, entertainment, consumption and research. Therefore, some argue that animals, at a minimum, need protection from unnecessary suffering, through legal protection.
The summer course will focus on some of the fundamental elements of the protection of animals in the legal system, while regularly making the link with morality and science, as these three disciplines intersect and continuously influence each other. New scientific findings on the state of animals lead to moral discussions on the treatment of animals, which in turn trigger new legislation on the area. In this regard, the emphasis of the course will be the protection of animals in the European Union, by exploring the path of creation of

primary and secondary legislation in animals within the EU institutions, together with the different interests and challenges at stake when drafting regulation on animal welfare.

The course will also include attention to countries outside the EU, such as the United States. Here especially the animal welfare act and new legislation, such as the ag-gag laws, will be studied together with specific litigation. A special interest will be given to the ongoing work of the legal animal rights movement which seeks to change the legal status of animals and provide them with fundamental rights.

Throughout the course there will be a balance between studying legislation, analysing case law from national courts and the European Court of Justice on the one hand, and discussing and questioning the place of animals in the legal system and what kind of legal protection they should be granted on the other hand. Experts in different domains within the scope of Animal Law will make valuable contributions during several guest lectures.

Contents

1.Animal regulation in the EU and the Council of Europe
Animal protection in a historical perspective. Present time - standstill or can the legal protection proceed.
The conflict between free movement of goods and animal protection. The bottlenecks of the implementation process.*
Welfare of the animals as a fundamental issue for the EU. New animal welfare clause (Art. 13 TFEU).
The creation of animal welfare legislation through and with different stakeholders – the art of lobbying.

2. The regulation on animals
International and European law on animals as it stands: overview of the fundamental existing treaties in the field of animal protection, slaughter, transport, scientific purposes, trade law.
The development of regulation on animals; national vs. global regulation with the possible "race to the bottom" of standards and the need for harmonization on the treatment of animals

3. The different approaches to the regulation of animals
The moral status of animals in a philosophical perspective. The way in which the law defines and treats animals often has depended on prevailing public attitudes about morality and economics.
The debate between animal "rights" and animal "welfare". The non-human rights projects seek to give animals fundamental rights with the use of the legal tool habeas corpus.
Science is constantly advancing in the field of animals and the laws need to keep up with the scientific findings - i.e. European Directive 2010/63/EU on the protection of animals used for scientific purposes has extended its scope (Cephalopodan).

4. Animal Protection and the WTO
Animal protection and welfare within the framework of the World Trade Organization (WTO). A missed opportunity or a cause of tension?
GATT (General Agreement on Tariff and Trade)
The Seals Product case (2013/2014)

VIKING AGE SCANDINAVIA

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Johan Sandvang Larsen
Date	2/7-19/7

Exam type: The exam consists of a portfolio containing a number of assignments. The number of assignments, their form (individual and/or group-based, written and/or oral, set and/or on a topic of the student's choice) as well as the deadline for submission will be announced on Blackboard by the teacher at the start of the semester.

Description of qualifications

Purpose:

This course will examine Viking-Age Scandinavia as an interdisciplinary area study, concentrating on archaeology and textual sources. The course will focus on current research and discoveries as well as ongoing discourses.

During the Viking Age (c. 750 – 1050 AD), Scandinavians suddenly enter the scene of the world known at that time. They were to leave their mark all over Europe and beyond, and contributed to shaping the world we live in today. The Viking Age stands as an essentially formative period of European history. The Scandinavians enter the world known at that time in many different ways. With their discovery and colonization of Iceland, Greenland and America the Vikings expand the borders of the known world.

Moreover they contrubuited to the formation of the Rus' and established trade routes to Byzantium and even the Caliphate. At the same time, the societies in the Viking homelands (Denmark, Norway and Sweden) go through a process of fundamental transformations, leading to the development of important places and institutions. In this way, the Vikings have left their mark and contributed to shaping the world that we are living in today, both in Scandinavia and most of Europe.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:

- demonstrate knowledge of central concepts, theories, methods and empirical research of relevance to the subject covered by the humanities elective
- demonstrate knowledge of central issues relating to the subject covered by the humanities elective
- demonstrate insight into how various perspectives provided by different fields within the humanities can shed light on the subject covered by the humanities elective.

Skills:

- formulate an academic research problem within the framework of the humanities elective
- assess the relevance of different theories and methods in relation to this issue, including the ability to assess the scope and limitations of the student's own primary field of study in relation to it
- communicate the issue clearly.

Competences:

- participate in academic cross-disciplinary collaboration with students from other fields of study
- measure the academic independence required to discuss and reflect on an interdisciplinary issue of relevance to the humanities elective.

VISUAL ANTROPOLOGY TODAY: INFRASTRUCTURES FOR SEEING, THINKING AND KNOWING

ECTS	10
Level	Bachelor
Lecturer	TBA
Date	29/7-10/8

COURSE DESCRIPTION

Exam type: The exam takes the form of a Take-home assignment on a topic of the student's choice with a product.
Academic prerequisites: The course is aimed at BA students within the social sciences (primarily anthropology, sociology and aesthetic disciplines), who wish to strengthen their practical competences and insight within the field of visual anthropology.

Description of qualifications

Purpose:
Get a solid introduction to the discipline of visual anthropology and the practical production of audio-visual components in social science research.
The course provides students with a thorough introduction to visual anthropology from film and photography to digital video and social media. The course participants will be introduced to classic and recent literature on film and photographic means, history and applications that allow them to develop, produce, discuss and analyse (audio) visual representations aesthetically and scientifically.
Throughout the course, students are introduced to the discipline of visual anthropology through critical readings of central methodological and analytical texts. The course introduces a variety of concrete examples of participatory opportunities that digital anthropology and new media offer in social science research. The course introduces elements of 'blended learning'. Students can consult online video elements and related questions, prior to the course starting date alongside their reading of the course literature.

The course covers:
- conceptualisation of (audio)visual, digital and online components in social science research
- practical development and implementation of (audio)visual components
- basic editing of (audio)visual material
- analysis and discussion of (audio)visual, digital and on-line media

- epistemological dimensions of visual anthropological approaches
- ethical issues related to (audio)visual practice.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:
- display a knowledge of specific theories and approaches within visual anthropology
- present, describe and explain different methods and methodologies within visual anthropology
- demonstrate an understanding of the inspiration from theories and/or methodologies into concrete analyses of socio-cultural phenomena
- reflect on the given method of analysis of the material.

Skills:
- conceptualize audio-visual, digital and online components in social science research
- integrate audio-visual methods and approaches in research design
- develop and implement audio-visual components

SEX, DEATH AND FICTION: EVOLUTIONARY LITERARY AND FILM STUDY

ECTS	10
Level	Bachelor
Lecturer	Joseph Carroll
Date	2/7-19/7

COURSE DESCRIPTION

Exam type: The exam takes the form of a Take-home assignment on a topic of the student's choice.

Academic prerequisites: The course is aimed at BA students within the social sciences (primarily anthropology, sociology and aesthetic disciplines), who wish to strengthen their practical competences and insight within the field of visual anthropology.

Description of qualifications

Purpose:
This course introduces students to the history and theory of evolutionary thinking in the humanities. The evolutionary human sciences are entering a mature phase, but have until recently operated on an inadequate understanding of "culture," and especially "imaginative culture": religion, ideology, myth, the arts, and intellectual life. That weakness is now being corrected by evolutionary thinking emerging from the humanities, as evolutionary approaches to literature and film are growing in importance and visibility.

Successful effort in the course will enable a student to gain a good grasp of basic evolutionary theory and an understanding of how that theory applies to human behavior, feeling, and thought. That understanding will be articulated in class discussions, in-class writing assignments, and contributions to course wikis. By the end of the course, students should be able to integrate high-level causal principles of evolutionary biology, concepts of human nature deriving from the evolutionary human sciences, and a nuanced understanding of how meaning and effect are produced in specific works of literature and/or film. This kind of knowledge has broad application to most fields of professional life. Evolutionary psychology, genetics, and neurobiology are rapidly transforming our understanding of the way humans are embedded in the natural and social world. Students who are young adults now will eventually become responsible for policy decisions affecting individuals, social organisms, and the natural environment. Having a good basic understanding of how biology and culture intertwine will be indispensable to making sound policy decision.

Over the past forty years, the evolutionary perspective has gradually developed into an explanatory framework that

encompasses all things human: anatomy, physiology, behavior, and the products of the human mind. The evolutionary human sciences are now entering a mature phase. They have developed a sophisticated understanding of basic human motives and the logic of the human life cycle. The one most important weakness in much evolutionary psychology, until recently, has been an inadequate understanding of "culture," and especially of "imaginative culture": religion, ideology, myth, the arts, and intellectual life. That weakness is now being corrected by evolutionary thinking emerging from the humanities. Evolutionary studies of literary works have been entering a phase of mature command. This course is designed to acquaint students with the total set of ideas that enter into a biocultural understanding of prose fiction, graphic narratives, and film. The premise of this course is that works of fiction center on the main substantive areas of human motives: survival, mating, parenting and family life, growing up, establishing an individual identity, engaging in the social life of a community, experiencing conflicts between communities, and pursuing the life of the mind. In each session of the course, we shall read background psychological studies on each of these themes and also read fictional works that center on the theme for that session.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge
- concisely formulate the chief characteristics of the human life cycle, including its phases and primary (universal) relations of kinship and sociality
- explain how the human life cycle evolved in accordance with natural selection
- formulate basic concepts in literary meaning and to explain how literary meaning fits into the larger adaptive patterns of the human life cycle
- reflect critically on literary texts and to make fruitful connections between the motives and affects of the human life cycle and the imaginative structures of literary texts.

Skills:
- demonstrate the ability to assimilate the concepts presented throughout the course and use those concepts to construct thoughtful commentaries on literary works
- engage in intelligent dialogue during the course.

Competences:
- responsible for managing their time in a way that enables them to read a great deal of fairly challenging material
- responsible for raising topics for discussion in class, and thus responsible for engaging other students in dialogue
- independently plan the paper and execute the plan.

CHILDREN'S AND YOUNG PEOPLE'S TEXTS AND MEDIA- NORDIC AND INTERNATIONAL PERSPECTIVES

ECTS	10
Level	Master
Lecturer	Nina Christensen
Date	27/7-14/8

COURSE DESCRIPTION

Exam type: The exam is in the form of lecture participation; cf. the general rules of the academic regulations.

Description of qualifications

Purpose:
The purpose of this course is to provide an introduction to the broad concept of texts and media in the everyday medialised lives of children and young people, comprising literature, media texts, and texts and media produced by children and young people themselves. The students must be able to understand and analyse the texts and media of children and young people in context, including institutional, commercial, aesthetic and educational contexts. Methodical and theoretical approaches from the fields of comparative literature and qualitative media studies are adopted. The students must also be able to relate the topics presented in the course to their own academic background.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:
- demonstrate an understanding of the intended and actual use of children's texts and media based on knowledge about changing concepts of childhood
- demonstrate an understanding of theoretical and analytical approaches to the interaction between literature and other media
- demonstrate an understanding of the ways in which children use different media as both recipients and co-creators.

Skills:
- apply knowledge in order to critically analyse the interaction between concepts of childhood and examples of children's literature and media

- apply knowledge in order to critically examine examples of transmedial connections between children's literature and other media
- communicate and present knowledge within the subject area orally in an interdisciplinary context.

Competences:
- independently engage in collecting and organising knowledge within the subject area
- collaborate and engage in the cross-disciplinary planning of a seminar, taking into account the significance of the influence of different contexts on analyses.

POST-CREATIVE PRACTICES IN COMPUTATIONAL ART AND CULTURE

ECTS	10
Level	Bachelor
Lecturer	TBA
Date	2/7-19/8

COURSE DESCRIPTION

Exam type: The exam is in the form of lecture participation; cf. the general rules of the academic regulations.

Description of qualifications

Purpose:
The course combines the study of art and various other aesthetic and cultural practices with the field of computational art and culture, understanding and reflexion. The proliferation of new, digital media fundamentally transforms the ways in which we have traditionally produced and created stuff, from cultural artefacts in the narrow sense of the word (literature, visual art, music, cinema, etc.) to the broad variety of mundane products and commodities. This challenges the ways in which we have conceptualized, perhaps even invented, creativity throughout the 20th Century, namely as a predominantly human domain.

This course will examine our theoretical and practical approaches to those practices we label 'creative' and how these are enmeshed with specific digital phenomena like machine learning, artificial creativity, and algorithmic software within the context of computational art and culture in general. Parts of the course will take a historical-genealogical approach, focusing on how and not least why we have understood,embraced and enacted creativity in different ways throughout history and within different fields (art and cultural policy, psychology, technology, economy, work, etc.). But primary focus will be on new, contemporary creative practices and their entanglements with our digital technologies (with a special interest in our current mediascapes). To this end, the course will also enable the students to understand the foundation of computational art and culture (including how a computer works) and critically grasp the relationship between Machine Learning and Artificial Creativity and its bearings on our creative practices in general (no prior coding experience is required).

Through a combination of reading, discussing, observing, modelling, analysing, and prototyping the aim is to introduce and develop new tools, methods and insights for understanding, analysing and engaging critically in post-creative practices.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:
- of central concepts and tendencies in the fields of creativity studies and computational art/culture - of how various, concrete practices of creative production and digital technology mutually relate - of central theories about and research into the cross-field between creative production and computational art /culture.

Skills:
- analyse how the creative production processes of artefacts are entangled in and conditioned by digital technologies (software and hardware) as part of computational culture
- analyse concrete phenomena of digital technology, machine learning and artificial creativity from a creativity studies perspective
- formulate an academic research problem regarding creative production and computational art/culture
- communicate a research problem and concrete analyses clearly.

Competences:
- the ability to participate in academic cross-disciplinary collaboration with students from other fields of study
- the measure of academic independence required to discuss and reflect on an interdisciplinary issue of relevance to the course
- the ability to consider the student's own field of study from a new angle and to actively apply new insights to the student's academic work in his/her own field.

GLOBAL FANDOM IN THE DIGITAL AGE

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	TBA
Date	2/7-19/8

Exam type: The exam is in the form of lecture participation; cf. the general rules of the academic regulations.

Description of qualifications

Purpose:
This course will introduce the key theories and concepts of fan studies and the development of fan theories in the Internet age, where digital networks have significantly changed the media environment. It will focus on how the participatory culture has evolved in a time where communication over internet has become part of our everyday life. The thematic concerns will cover a wide range of new way of distribution and circulation, fan cultural hierarchies and taste communities, social media and online fan communities, online fan fiction, practice online fandom in the age of media censorship, participatory culture, Convergence culture, etc.

When the students complete the course they will expect to: 1. Gain knowledge of key theories of fan studies 2. Gain knowledge of media censorship on social media 3. Be able to transfer insights to other field of humanity studies and social science 4. Analytical skills of online cultural phenomena 5. Ability to present and produce user generated content.

The development of the internet and new technology has increased the visibility of fandom. It broke down the geographic barriers and made it easier for people to access free flow of information, connect and communicate at anytime anywhere. The internet allowed fans of TV, films, music, video games among others to participate in sharing, producing, circulating and promoting cultural products, it has become a new distribution channel for amateur cultural production. “How fans’ using of technologies brings a sense of playfulness to the work of active reading. The work that fans put into creating fan fiction, fan blogs, fan videos, fan wikis or other fan works can all be boiled down to the fact that they are fun to share” (Booth, 2010). In this course we will analyse online fan cultures of popular television dramas such as Sherlock, SKAM, Game of Thrones through different online fan communities, twitter, Weibo, fan fiction/slash fan fiction communities, interpretative communities, etc. We will also discuss how fandoms practice differentiate in relation to culture, gender, media censorship, linguistic among others. Students are encouraged to work in groups and develop a case study of their own, and present their projects by the end of the course.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:
- Demonstrate understanding of the key theories of fan studies
- Demonstrate knowledge of research methods in fan studies.

Skills:
- Choose relevant and appropriate methods in data collection
- Develop analytical skills of online cultural phenomena.

Competences:
- Be able to carry out a research design of a chosen online phenomenon based on relevant theories and methods
-Be able to transfer insights to other field of humanity studies and social science.

GAME. PLAY. DESIGN

COURSE DESCRIPTION

ECTS	10
Level	Master
Lecturer	TBA
Date	22/7-9/8

Exam type: Passing the course requires active participation in the course, meaning:
- active participation in both group- and course-exercises
- delivery of a package of small produets consisting of a written academic blog post, an academic poster, an oral presentation, and a game design concept or prototype.

The course will end in a public exam exhibition and reception at Dokkl simultaneously functioning as the course examination.

Description of qualifications

Purpose:

Through the course the student will develop a theoretical, analytical and methodological appreciation of games, gameplay and gamedesign as well as a practice-oriented, hands-on, conceptualizing approach towards digital games as designed object, aesthetic expression, interaction form, user experience and cultural product.

Game.Play.Design is an interdisciplinary, playful and process-oriented Summer School that revolves around digital games, digital gameplay and digital gamedesign. The lecturers are themselves interdisciplinary in their approach having professional basis in media studies, information studies, digital design, educational design, interaction design, aesthetics, experience economy and learning design. The aim of the course is to design, discuss and critically reflect on digital games through the lens of the student's profession in a cirtical-creative way. Through discussing and playing with core concepts in game design and game analysis, through designing and playing our own games, as well as through critically rethinking the role and potentials of games for and in society, the course grapple with digital games as phenomenon, practice and design. Through working in interdisciplinary groups, students engage the potentials of game design through theoretical, empirical and practical work. The aim of the course is to combine theory and practice in playful and innovative ways in order to rethink the potential of a certain context, approach or setting through game design. The course alternates between teacher-led presentations & workshops (week 1 & 3) and student-driven fieldwork, prototyping and presentations (week 2 & 3). All Game.Play.Design projects are carried out in interdisciplinary groups, put together in such a manner as to amplify the output in both gameplay theorizing and designing. The course is designed as a stepwise process where the students

a) move between theory about, fieldwork on and analysis of digital gameplay resulting in a first game concept in week 2 and b) carry out user workshops & conceptual design of digital gameplay resulting in a prototype, poster presentation in week 3 culminating in a final exam exhibition at Dokk1, Aarhus No special technological skills are required for this course – just dedication to and an interest in digital gameplay and its potentials.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:
- exhibit fundamental theoretical, analytical, methodological knowledge in his/her treatment of digital games against the backdrop of the course syllabus
- display comprehension and appreciation of how their own interdisciplinary theoretical, analytical, methodological and empirical approaches can be put productively to use with the course syllabus.

Skills:
- carry out a design based research process with the purpose of producing a game concept ('proof-of-concept')
- evaluate and critically discuss a problematic subject matter through gamemaking and through putting forward relevant focal points in order to propose a relevant solution to the problem in the form of a 'proof-of-concept'
- analyse and critically reflect on the game concept through the use of theory and empirical knowledge
- iteratively qualify their 'proof-of-concept' through a design based research process of applying theory, building an analysis model and carry out an analysis of the produced game concept
- refine and critically evaluate the produced 'proof-of-concept through evaluation techniques such as workshops, user tests, heuristics, qualitative methods or other tools.

Competences:
- participate in and contribute to interdisciplinary group work and group exercises
- as a group independently plan and carry out a research through design process
- as a group at the end of the course produce and present a 'design-concept' or 'proof-of-concept'
- as a group present the results of the research through design work in the form of oral presentation, academic poster, game prototype and video pitch through participating in the final exhibition/examination.

VISUAL CULTURE AND COMPUTATIONAL THINKING

ECTS	10
Level	Bachelor
Lecturer	TBA
Date	2/7-19/7

COURSE DESCRIPTION

Exam type: Take-home assignment with a portfolio

Description of qualifications
Purpose:
Today's visual culture is heavily dominated by digitalization and computation: Not only are the majority of images that we look at digitally created and/or presented, they are also circulated and modified digitally, and this influences how we handle and understand images. The course allows students to work on two overall and interrelated strands: How do we understand and analyse digital and computational images (from private Snapchats to CCTV in public space and satellite maps in the daily TV weather report)? And how do new technologies alter the way we understand and use images on a more general, cultural level? For instance: What are the cultural implications of fact that traditional maps are now split into Google street view imagery on the one hand and pure GPS-data on the other? Or, what do we consider to be a visually accurate portrait of person today – a selfie or a graph showing the person's biometric data?

The course is aimed at students from the field of visual culture (including e.g. art history, visual anthropology etc.) as well as students from computational/digital fields. Through the course, visual culture students will gain better understanding of the practical, analytical, and theoretical implications computational thinking poses to visual culture, and student from computational/digital fields will gain a better understanding of images and visual culture.

The course will apply a cross-disciplinary approach that enables students from different disciplines to mutually benefit from exchanging existing knowledge, but students are not required to have cross-disciplinary experience prior to the course.

The course combines the study of visual culture with the broad field of computational thinking, understanding and reflexion.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:
- demonstrate knowledge of central concepts and tendencies in the fields of visual culture and computational thinking

- demonstrate knowledge of how various, concrete practices of contemporary visual culture and digital technology mutually relate
- demonstrate knowledge of central theories about and research into the cross-field between visual culture and computational thinking.

Skills:
- analyse concrete phenomena of visual culture from a computational thinking point of view
- analyse concrete phenomena of digital technology from a visual culture point of view
- formulate an academic research problem regarding visual culture and computational thinking
- communicate a research problem and concrete analyses clearly.

Competences:
- participate in academic cross-disciplinary collaboration with students from other fields of study
- demonstrate the measure of academic independence required to discuss and reflect on an interdisciplinary issue of relevance to the course
- consider the student's own field of study from a new angle and to actively apply new insights to the student's academic work in his/her own field.

SUSTAINABLE ENTERPRENEURSHIP

COURSE DESCRIPTION

ECTS	10
Level	Bachelor
Lecturer	Sarah Robinson
Date	22/7-9/8

Exam type: The exam consists of a portfolio containing a number of assignments which the student submits to the teacher during the course.

Description of qualifications

Purpose:

The purpose of this course is to enable students to map problems with societal and/or environmental implications and to develop sustainable solutions through innovative and entrepreneurial methods.

Course content:

- Core definitions, concepts and models in the field of entrepreneurship and sustainability (among others individual-opportunity-nexus, different kinds of value creation, social innovation and entrepreneurship, circular economy, Triple Bottom Line (TBL) and the Sustainable Development Goals of UN)
- Effectuation – a method supporting entrepreneurial thinking and action
- Sustainable design processes: From exploring problems, over idea development to presenting sustainable prototypes
- Iterative processes and feedback loops.

Sustainability is a key concept for the future: The 17 Sustainable Development Goals of UN have helped systematizing the gigantic challenges we are facing. However the problems come in many different shades in local and regional contexts. This is why it is essential to learn how to frame and explore concrete problems– and ultimately develop more optimal solutions for both society and environment. The entrepreneurial and innovative methods you will learn to apply have a very broad relevance: Regardless of career plans you will find yourself standing in "uncertain situations where you have to create what is not there yet" (Stine Trolle Elmholdt, AU, 2018).

Academic objectives:

In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:

- Explain selected definitions, concepts, models and techniques in the field of entrepreneurship and sustainability
-Demonstrate understanding of and reflect on the effectuation method and the Triple Bottom Line (TBIL) - concept.

Skills:
- Apply the effectual method including mapping “the-bird-in-hand” of an interdisciplinary group
- Analyse, define and document a problem and the related needs of one or several stakeholders, based on primary and secondary data
- Develop potentially sustainable solutions by applying creativity techniques and at least one sustainable business model tool
- Present a solution through a relevant prototype and short presentation.

Competences:
- Create new sustainable solutions to complex real-world problems through an iterative and collaborative process including external stakeholders
- Include feedback in the process of understanding complex problems and developing new solutions: Providing others with, seeking, receiving and applying feedback.

VISUAL MEDIA PRODUCTION: MAKING SHORT FICTION FILMS

ECTS	10
Level	Bachelor
Lecturer	Morten Søding Sørensen
Date	15/7-9/8

COURSE DESCRIPTION

Exam type: The exam consists of a portfolio consisting of a number of assignments produced by the student during the course and submitted to the teacher on Blackboard.

Description of qualifications

Purpose:
The purpose of the internationalisation electives is to provide students with the opportunity to use a foreign language in an academic setting, and to work with an academic theme within the humanities.

The purpose is also to teach the students to operate in a cross-disciplinary teaching context, thereby gaining a cross-disciplinary perspective on their own subject area.
The course contributes to the international dimension of the degree programme and improves the students' understanding of the academic profile of their degree programme in relation to the humanities as a whole.
Detailed stipulations regarding the form, content and examination format of the individual courses are stated in the course descriptions in the course catalogue: http://kursuskatalog.au.dk/en/.

This course is an intensive summer course taught over approximately 2-4 weeks in July and/or August. This means that you should expect to work with this course in class as well as independently (lectures, tutorials, presentations, group work, preparation) for a large portion of the day, most/all days of the teaching period. You should also expect to do some preparation in advance, depending on the curriculum of your course. Most courses will require reading or preparation of other exercises before course start.

The intensive format and the fact that a number of courses are taught by (international) guest lecturers also means that you should be open to the possibility that the course might be taught differently than what you are used to (different teaching styles, theories, exercises etc.).

Working in small groups, participants in this hands-on production course will develop a screenplay, shooting script and storyboard for a 3-7-minute short fiction film, carry out such other pre-production tasks as casting and location scouting, and then shoot and edit their films. In the process, they will gain experience with

the organization and execution of complex tasks while working as a team under the pressure of tight deadlines.
The conceptual framework for this course will be a non-formulaic model based on the view that short film storytelling can best be described in terms of opposing properties that balance and complete one another in a dynamic interplay. An approach of this kind is not only more open than the standard sequential and actant models, but also better suited to catching the most common beginner mistakes when short films are produced by student filmmakers.
No previous experience with production equipment is required. Basic instruction will be given in the use of semi-professional cameras and the Final Cut Pro editing

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:
- apply the key theoretical and methodological approaches of the course
-critically reflect on their own oral and/or written products (and those produced by others) in relation to the academic and theoretical discussions of the course.

Skills:
- understand the storytelling principles and strategies specific to the short fiction film and to apply those principles and strategies effectively in the development of a screenplay and in the identification and resolution of storytelling problems
- produce a short fiction film, by carrying out such production tasks as casting and location scouting, the staging and filming of events before the camera, managing basic lighting and sound recording, and editing the film using Final Cut Pro
- explain in a subsequent report on the film produced in this course the basic choices that were made regarding a) script development; b) directing; c) camera work and framing; d) visual and sound editing; e) an audience test in the form of a professional filmmaker's visit during editing
- discuss the theme of the course in the foreign language in an academic context.

Competences:
- participate constructively in learning collaboration in a foreign language across educational and/or cultural backgrounds
- gain perspective on and compare the academic profile of the degree programme in relation to the subject areas of the humanities.

READING NARRATIVES OF SLAVERY, MEMORY AND HUMAN RIGHTS

ECTS	10
Level	Bachelor
Lecturer	TBA
Date	1/8-10/8

COURSE DESCRIPTION

Exam type: Lecture participation is a prerequisite for taking the exam. The exam consists of a portfolio containing a number of assignments.

Description of qualifications

Purpose:
The purpose of the course is to introduce students to multiple 'uses of the past' in
(A) slavery, abolition, human rights and memory studies
(B) make them develop critical understandings of the different positionalities in American, African and European narratives on slavery through comparative analysis.
(B) develop critical skills through in-depth reading and analysis of literary texts, films, art, museum exhibits, music and other discursive genres and evaluate these products in their historical and cultural contexts.
(C) use the above mentioned critical skills in active class participation (students' oral contribution) and written communication skills (portfolio).
(D) develop their ability to apply interdisciplinary, comparative and theoretical insights, brought together in a research portfolio.

The course covers various aspects of legacies of slavery in different continents in both space and time. The course provides a general introduction literary and cultural studies in relation to slavery and memories of slavery in the context of global human rights discourses. The course deals with this topic in practices by analysing an array of sources dealing with slavery in Africa, America and Europe. It also includes an introduction to central approaches within anthropology on contemporary legacies of slavery and anti-slavery.

The course is the tool box for the degree programme, providing students with analytical skills in comparative literature and beyond. The course provides students with an overall orientation competence in the cultural study of memory and slavery. Therefore, the course is relevant for students wishing to work with the multiple uses of the past and inequalities in our contemporary world.

Academic objectives:
In the evaluation of the student's performance, emphasis is placed on the extent to which the student is able to:

Knowledge:

- reproduce theoretical knowledge on the topic, by making sound use/application of analytical concepts

- demonstrating an acquired insight into the methodological tools in both literary and cultural approaches to the study of slavery and memory

- demonstrating an awareness of the complex positionalities in debates about past and present slaveries.

Skills:

- being able to contextualise different views on slaveries in space and time by using accurate vocabulary in this subject area

-gaining insight into the importance of comparative approaches to the memory cultures and human rights issues involved in various 'slaveries'

- solid background for potential future work or internship in/for social movements, NGO's or other (international) organisations working in the field of slavery and/or slave like practices of exploitation.

Competences:

- independent work with the different concepts and methods for the portfolio

-working from a comparative point of view

-evaluating and engaging in the (dis-)advantages of cross-disciplinary collaboration around a central focus theme (here slavery).

MANAGING LANGUAGE IN INTERNATIONAL ORGANISATIONS

ECTS	10
Level	Master
Lecturer	Dardo De Vecch
Date	2/7-19/7

COURSE DESCRIPTION

Exam type: The exam consists of a take-home assignment on a topic of the student's choice.

Description of qualifications

Purpose:

The aim of this course is to enable students acquire knowledge of the role of language in various management activities in international organizations. This is achieved in the light of the cognitive link between language and corporate culture, namely the concept of company-speak. In international, multilingual settings, company-speak can be managed as a real asset and not just as a secondary, instrumental factor.

Although the expression 'language' is strongly polysemous and has many facets, yet language is mainly considered as a utility package. It is often ascertained that if people can speak any given language, then all communication problems will be de facto solved. Theories and methodologies coming from the field of language for special purposes (LSP), corporate communication and terminology will be applied in order to shed light on the concept of company-speak in the framework of language management in daily international contexts.

The course will investigate on a number of significant multilingual situations, linguistic policies, legal aspects and linguistic barriers.

In the first part of the course, we explore the construction of meaning through language (names of products, services, departments, etc. and their linguistic and communicative creation). From a communicational point of view, it is important to take into account what the stakeholders need to understand in organizational discourses. Likewise, in human resources, the main issue is to keep a strong focus on the linguistic mechanisms of socialization and knowledge construction at work.

In the second part of the course, we focus on a number of core issues in international language management, particularly the challenges of intercultural translation in a broad sense. As all companies need to translate, not only between languages but also within languages, they transform, adapt, and construe every

day meanings for their managerial needs. We finally pay special attention to the reciprocal impact of digital technologies on language and communication.

The content of the course will be:
- from signs to language (Semiotics for communication in organizations)
- from daily language to the social dialect of a corporate culture: the company or organizational-speak. (Language for special purposes and terminology)
- constructing reality and giving names in an international context. (Semantic for organizations)
- acquisition of a company-speak to socialize and share knowledge. (Pragmaterminology for organizational knowledge construction)
- diversity of languages, diversity of situations
- translation needs and legal aspects of language use in organizations. (Sociolinguistics, Translation studies, Official languages)
- a group work in a guided workshop is presented in class for a critical analysis by students. In a final examination (at distance) students demonstrate a fundamental understanding of key concepts and their application.

Academic objectives:
The student is expected to acquire the following knowledge, skills and competences by the end of the course:

Knowledge:
- about the dynamics of language in international organizations
- about the management of company-speak as a strategic asset
- about critical methods for names creation in multilingual situations
- about cognitive aspects of language relevant to socialization, communication, and knowledge transfer
- about intercultural translation.

Skills:
- be able to identify hidden aspects of multilingualism, particularly in conflicts emerging from language use
- appropriate use of relevant academic concepts, theories and terminology for managing language in international organizations
- be able to manage a linguistic project for an international organizations from A to Z
- have a critical capacity to evaluate the results of a linguistic policy.

Competences:
- be able to evaluate, and optimize the use and role of language in organizations, and turn it into a strategic asset
- have the capacity to plan, develop and manage linguistic policies.

CLINICAL GLOBAL INFECTIONS DISEASES

ECTS	5
Level	Master
Lecturer	Christian Wejse
Date	5/8-23/8

COURSE DESCRIPTION

Academic prerequisites: If the number of places on the course are exceeded by the number of applications received, priority will be given to applicants with knowledge of the Danish health system. This could be obtained through a clinical stay at a hospital, to improve the possibilities of relating international issues proposed in the course to the Danish health system.

Description of qualifications

Purpose:
Infectious diseases are easily spread between countries and continents, and infections like SARS and avian flu shows that surveillance and control of epidemics are of international importance.

Major theme:

Infections in the individual both travelers and migrants using knowledge of infections in different regions of the world. The course will give an introduction to major infectious diseases like malaria, tuberculosis, HIV, yellow fever and others with emphasis on geographical distribution, difference in morbidity and mortality between different parts of the world, clinical signs and symptoms, diagnosis, prevention and control. Advice to travelers will be discussed and appropriate investigations in immigrants will be reviewed. Emphasis will be on the difference in incidence, prevalence, morbidity and mortality between countries and continents. Appropriate control programs will be discussed, both at national and international level.

The course will teach practical diagnostics of intestinal parasites and blood parasites like malaria through "hands-on" practical's and will give an introduction to so called “rapid tests”.

The course will enable the student to work in other countries especially developing countries providing background knowledge of disease prevalence, principles of diagnosis, treatment and a brief introduction to community control and prevention.

Obtained knowledge

The student will be able to suggest differential diagnosis, diagnostic procedures and first line treatment plans for common infections from different parts of the world including classical tropical medicine.

The student will be able to perform diagnostic procedures for intestinal parasites and blood parasites like malaria, and have a working knowledge of rapid diagnostic tests.

After the course the student will be able to estimate risk of infections in individuals travelling to a specific area and immigrants to a new country. The student will be able to provide sensible travel advice or know where such information is obtained.

HEALTHY ENTERPRENEURSHIP AND INNOVATION

ECTS	5
Level	Master
Lecturer	TBA
Date	30/7-9/8

COURSE DESCRIPTION

Description of qualifications
The objective of this course is to enable students to create opportunities based on their academic and professional skills and knowledge. Employing methods from entrepreneurship and innovation, students learn how to initiate value creating projects and products. The overall understanding of entrepreneurship in this course is much broader than merely establishment of new companies. Based on well-founded theories we see entrepreneurship as a method (Venkataraman & Sarasvathy 2011). Thus the theoretical underpinning of the method can be investigated and the method can be learned through the course components, which are: a) theoretical introduction, b) training, c) application and d) reflection. The course inspires students to an entrepreneurial and innovative approach in many settings such as their primary study programme, research, clinical practice, the industry and of course also start-ups.

The entrepreneurial process holds four major elements:

- Understanding your own means – who are you, what do know and whom do you know? (Sarasvathy 2001, 2008)
- Finding problems and creating opportunities (Spinoza, Flores and Dreyfuss 1997, Alvarez and Barney 2006)
- Qualifying products and creating a business model (Osterwalder and Pigneur 2010)
- Realizing value and pitching to relevant stakeholders (Wilmot and Carlson 2006)

After the course, the students must be able to:

- Explain and compare the presented entrepreneurship and innovation theories
- Explain the core components in the entrepreneurial process and use this knowledge to reflect upon the process that he/she has gone through during the course
- Describe and reflect upon relevant personal and professional competences and preferences in an entrepreneurial team including network
- Identify, describe and scope relevant problems (or disclose disharmonies) in everyday practices in a medical setting
- Apply methods to find out if the problem or disharmony is widely accepted as a problem

- Identify and qualify an opportunity through an innovation process
- Prepare a preliminary business model and be able to discuss the pros and cons of different types of business models
- Present an opportunity to stakeholders

Contents

- Introduction to core concepts in the innovation and entrepreneurship field
- The entrepreneurial method and the effectual logic
- Personal and professional competences and preferences
- Identification and definition of problems (disharmonies) in the medical everyday practice
- Idea generation, idea development and idea selection (divergent and convergent methods)
- Innovation types and processes
- Prototypes and presentation techniques
- Business models

NEUROIMAGING

ECTS	5
Level	Master
Lecturer	Michael Winterdahl
Date	16/7-26/7

COURSE DESCRIPTION

Description of qualifications
Objectives of the course:

The course is aimed at introducing talented and enthusiastic graduate university students to basic aspects of preclinical and clinical brain imaging. Modern imaging technologies such as positron emission tomography (PET) and magnetic resonance imaging (MRI) will be presented and discussed because they hold a great potential to expand our current knowledge in many life science areas.

Embracing the interdisciplinary nature of the field, our program is targeted at graduate university students from psychological, medical and biological sciences as well as the natural sciences (such as chemistry, medicinal chemistry, physics, math, statistics and computer science). The Interdisciplinary Summer School on Neuroimaging aims to provide a solid foundation in state-of-the-art functional neuroimaging methods. The course will cover central aspects of PET and MRI, including experimental design, data acquisition, and computerized data analysis. The program will highlight the most current research in order to illustrate how neuroimaging can be used to test hypotheses and to provide evidence-based answers to issues related to diverse aspects of brain function in both health and disease. Students will be encouraged to interact closely with teachers, both in lectures and in practical laboratory exercises, so that they become better prepared to carry out research projects in neuroimaging and to evaluate published findings.

Learning outcomes and competences:

At the end of the course the student should be able to:

- Choose the most suitable imaging modality for studying a giving research question.
- Explore the cause of common psychological and neurological disturbances and design experiments to test hypothesis based on this knowledge.
- Critically review scientific publications dealing with neuroscience.
- Apply acquired knowledge on brain imaging and brain function to design experiments on topics of individual interest.

COGNITIVE NEUROSCIENCE

ECTS	5
Level	Master
Lecturer	Michael Winterdahl
Date	2/7-12/7

COURSE DESCRIPTION

Description of qualifications
The objective of the course is to give students:

- an understanding of modern theories of brain organization and functioning and how these relate to cognitive processes in both healthy and pathological populations
- knowledge of the bi-directional relationship between psychosocial factors and diseases
- insight into mechanisms of various diseases
- an in-depth understanding of the strengths and shortcomings of a wide variety of approaches in the investigation of brain-cognition processes

Learning objectives:

- At the end of the course the students will be able to:
- Present and discuss theoretical backgrounds of cognitive psychology and neuroscience and their relationship
- Describe common research methods within the field of cognitive psychology, neuropsychology, and neuroscience.
- Evaluate findings within the field of cognitive psychology and neuroscience.
- Critically review scientific publications dealing with cognitive neuroscience.

Contents

Cognitive neuroscience is an emerging interdisciplinary field of study related to the neural substrate of mental processes. It is at the intersection of cognitive psychology, neuropsychology, and neuroscience, combining theories of cognitive psychology with modern neuroscience methodologies. The course introduces basic neuroanatomy, functional imaging techniques, and behavioural measures of cognition, and discusses methods by which inferences about the brain bases of cognition are made. We consider evidence from patients with neurological diseases and from normal human participants.

MOTHER-CHILD-HEALTH

ECTS	5
Level	Master
Lecturer	Eva Cecilie Bonefeld-Jørgensen Bodil Hammer Bech
Date	22/7-9/8

COURSE DESCRIPTION

Exam type: The course is passed by class participation

Description of qualifications
The overall objective of the course is to introduce how factors in the parent's health and during pregnancy can influence the development and health of the fetus and the child up to the age of puberty.

Learning Objectives

The students should be able to:

1. Read and apply scientific literature for understanding reproduction studies of mother-child and health
2. Explain the most important physical, chemical, psychosocial, lifestyle and biological environmental exposures of importance to mother-child health nationally and internationally.
3. Describe methods and designs for the elucidation of reproductive studies as well as the development of the fetus and child's development and health and explain limitations and strengths in scientific studies
4. Describe methods and designs that support the biological plausibility of epidemiological studies
5. Use methods for risk assessment, including hazard identification, hazard characterization, exposure characterization, and risk identification.
6. Describe risk management tools such as prevention hierarchy, legislation, limit values, labeling, control and other prevention measures.
7. Students should be able to apply the acquired knowledge to propose relevant prevention and risk management for different types of exposures.
8. Describe basic issues of risk communication and propose new actions in the fields of reproductive and molecular reproductive epidemiology for the dissemination of health risk upon various exposures.
9. Consider and reflect on the relevance and application of the theory and method of the subject to current empirical issues at local, national and international level, and discuss the interaction between social conditions, lifestyle, genetics, environmental impacts and health

Contents

This course in "Mother-Child Health" is multidisciplinary and brings together teachers from many different areas of expertise. The overall objective of the course is to introduce how factors in the parent's health and during pregnancy can influence the development and health of the fetus and the child up to the age of puberty.

The parent's health and factors during pregnancy can influence fetus growth and development, neonatal and child cognitive development and health, preschool and school health and performance, and puberty development. Focus will be on how lifestyle, diet and exposures (environmental) during pregnancy can affect fecundity, fetal and infant growth and CNS development including ASD, ADHD, schizophrenia and Cerebral Palsy. In addition, the course will include health risk by genetic susceptibility assessed by genetic polymorphisms and epigenetic analyses that might elucidate the association between environmental exposures and risk for poor neurodevelopmental outcome. The course will include presentation of data from different birth cohorts from Denmark, e.g., Danish National Birth Cohort (DNBC), Aarhus Birth Cohort, ACCEPT from Greenland, MISA from Norway, Shanghai Cohort from China and others.

The course will be demanding for the students to be active participate in discussions and give presentations. The course include lectures on relevant topics from teachers representing different areas of expertise, e.g. male and female fecundity, lifestyle, diet and exposures during pregnancy, fetal growth and development, neonatal and child cognitive development, preschool and school health and performance, and puberty development. Some examples of topics/lectures:

- Lifestyle and medical factors that influence fecundity
- Maternal lifestyle during pregnancy and reproductive health in sons and daughters
- Lifestyle habits in Danish pregnant women
- Coffee/caffeine during pregnancy – cause for concern?
- Preterm delivery and long-term follow-up
- Fertility and pregnancy in the Arctic
- Genetic and prenatal environmental factors in ASD, ADHD, and schizophrenia
- Diabetes/obesity and mother-child health
- Medication exposure and its importance to pregnancy/ fetus
- Environmental exposures during pregnancy, molecular mechanisms and hormone disruption
- Pre-conception and prenatal occupational exposures and allergic disease in the offspring
- Cost-benefit analyzes of early efforts for children's well-being and learning.
- Teaching will typically include 1-2 hours of lectures followed by one-hour group work and one hour of discussion of given related literature by student teams of approximately four students. Thus in conjunction with each lecture, the selected student teams will receive

literature with questions for the lecture topic to be discussed in groups (one hour) and presented in plenum by the groups e.g. PowerPoint (PP). All groups must read the group work literature and questions; e.g. for a given question two groups will be responsible to discuss and present the answers in plenum and thereby be opponents of each other.

At the beginning of the course, student teams of max 3-4 students in each team receive a relevant topic for teamwork that will be prepared during the course. At the end of the course, the team submit a report of max 5 pages to be presented and discussed in plenum (a page is 2400 characters including blanks and the 5 pages is incl. notes but excl. table of contents, literature list, attachments and tables/figures).

EXPERIMENTAL TELEMETRY AND CARDIOVASCULAR PHENOTYPING

ECTS	5
Level	Bachelor
Lecturer	Vladimir Matchkov
Date	TBA

COURSE DESCRIPTION

Contents

Integrative regulation circulation and its pathological changes are only possible to study in awake animals, where telemetry technique is one of the essential modern approaches. During the last decade, telemetry has been developed from a very complicated and demanding technique to a modern user-friendly method. Applications are expanded in numbers and include recordings of blood pressure, biopotentials (i.e. ECG, EEG, EMG), blood flow, cardiac output, intracranial pressure, locomotion, temperature, glucose concentration, and the list continues to grow rapidly. Most of these techniques will be taught during the course. Modern telemetry is now used in rodent studies as well as in experiments on large animals; in the laboratory as well as in the natural habitat of the animals and even for biomedical studies in the space in weightless conditions. It is also more and more relevant for the clinic data collection. The course will provide examples and discussion for most of these applications.

At this course, we will share our expertise in telemetry that we have built up at the Aarhus University. This will be done with the support and close collaboration with the companies producing telemetry solutions, e.g. Data Sciences International, and several internationally recognized speakers from other Universities of Denmark and from Germany, Norway and Russia. The focus will be given for specific applications of telemetry methods. The lectures will be combined with hands on experience in surgery and in comprehensive data analyses.

We expect that the course will be valuable for students with interest in the cardiovascular area, basic research and/or industry and innovation. The course will also be relevant for students within scientific aspirations in neuroscience, metabolism, exercise and other integrative disciplines.

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IMMUNOTHERAPY

ECTS	5
Level	Bachelor
Lecturer	Martin Kristian Thomsen
Date	12/8-23/8

COURSE DESCRIPTION

Contents
Immunotherapy has gained clinical importance in recent years, primarily as a result of advancement in cancer treatment and modulation of inflammatory diseases. Immunotherapy means modulating the immune response either through enhancement or repression of the patient's immune system. A wide range of new drugs that modulate the immune system are under development, and they all share the advantage of specific action on a single target. This increases therapeutic safety and reduces side effects comparing to traditional treatment options.

This course aims to evaluate the modern immunotherapy and the future perspective of immune modulation. We will focus on the two axes of immunotherapy – enhancement of immune activity as is often used to treat cancer, and inhibition of immune activation as is done in treatment of inflammatory disease. The course will introduce different diseases with potential for immunotherapy. This includes different common types of cancer and inflammatory disease, but also rare immunodeficiencies, with well described genetic origin. The mechanisms of action of the immunotherapies will be discussed in details including antibody-based therapies, T-cell-directed therapy, and small molecule inhibitors of specific signaling pathways.

GENETIC ENGINEERING USING CRISPR/CAS

ECTS	5
Level	Bachelor
Lecturer	Rasmus O. Bak
Date	12/8-23/8

COURSE DESCRIPTION

Contents

Genetic engineering is becoming a cornerstone method in molecular and cellular biology, biotechnology, biomedicine, and soon in the Hospital setting to treat genetic diseases and to genetically manipulate cells, e.g. immune cells, to endow them with better properties. This summer course will introduce state-of-the-art CRISPR/Cas systems and cover key applications in genetic engineering ranging from core gene editing applications to other capabilities of the system such as transcriptional and epigenetic regulation. The use of CRISPR/Cas for probing basic gene function will be described as well as the current status and future perspectives in therapeutic gene editing. The course will have a specific focus on enabling the students to independently design and perform CRISPR experiments, which will be supported by hands-on laboratory exercises. These will cover aspects ranging from the initial design considerations to the final analysis of gene editing outcomes.