UNIVERSITÀ
CATTOLICA
del Sacro Cuore

Healthcare Management (HeMa)

Laurea Magistrale in *Management dei Servizi*
(Graduate Degree Programme/

2-year Master Degree in *Management of Services*)

Student Guide

2019/2020

Università Cattolica del Sacro Cuore

Rome Campus

THE HEALTHCARE MANAGEMENT PROGRAMME

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The Healthcare Management (HeMa) programme, a specific curriculum within the 2-year Laurea Magistrale in Management dei Servizi (Graduate Degree Programme in Management of Services) is designed for students interested in pursuing a career in the healthcare sector, in both public and private organisations. The curriculum is structured to achieve a good balance between economics, management and statistics, the three core-areas of study. An important feature of the HEMA programme is that all courses are shared between a resident faculty member and a visiting professor from abroad. This will give students the opportunity to learn in a truly international, multidisciplinary and dynamic environment. The programme is characterised by an extensive use of case studies as a way to introduce students to a wide range of practical management issues in healthcare organisations. In addition, HEMA students will be part of a prestigious University that – in addition to a strong reputation in research and education – holds a strong set of values that considers the integrated and balanced development of each community and of each citizen at the center of the healthcare system.

Main Learning Objectives

Students enrolled in the HEMA programme will acquire knowledge about:

- how to manage quality and operations, human resources and technological innovation in healthcare organisations
- how to use accounting information to take economic decisions
- how to interpret the evolution of healthcare spending and the functioning of healthcare markets
- how to use the most advanced methodologies in Health Technology Assessment
- how to use cutting-edge statistical and econometric tools for analysing economic and epidemiological data

Students will apply this knowledge to discuss practical cases during their classes and to participate actively to the workshops and seminars that will be organised throughout the year.

Career opportunities

The programme offers knowledge, skills and competencies particularly valuable to pursuing careers in organisations such as:

- Healthcare providers like hospitals, nursing homes and local health authorities
- Companies supplying medical equipment and devices, pharmaceuticals and biotechnologies
- Governmental agencies in charge of regulating the healthcare system
- Insurance companies
- Consulting companies

Important things to know

High social and economic impact. Healthcare is an increasingly important sector in world economies, absorbing growing shares of GDP. It influences the quality of life of all citizens. In addition, it is characterized by a fast growing technological innovation.

Growing career opportunities. The healthcare sector is changing at a rapid pace. Understanding and anticipating future challenges will be key to guarantee sustainability. This requires strong management competencies and skills.

Leading institution. Università Cattolica del Sacro Cuore has invested extensively in the area of healthcare management in the past fifteen years. The Post-Graduate School of Health Economics and Management (ALTEMS) and specific research centers, like the Center for Healthcare Management (CERISMAS), are active in academic research, consultancy, and executive education.

On-campus teaching hospital. The Healthcare Management programme benefits from the partnership between the School of Economics and the School of Medicine and Surgery, as well as the close relationship with the Policlinico 'Agostino Gemelli', one of the largest hospitals in Italy. This on-campus teaching hospital is a place where students can experience in practice what they have discussed during their classes.

Academic calendar

Month	Day						Year I	Year II
September		Mo	Tu	We	Th	Fr		
	Week	2	3	4	5	6		Exams
		9	10	11	12	13	Healthcare Management Lab	
	1	16	17	18	19	20	Fall semester starts September 16, 2019	
	2	23	24	25	26	27		
	3	30						
October	3		1	2	3	4		
	4	7	8	9	10	11		
	5	14	15	16	17	18		
	6	21	22	23	24	25		
		28	29	30	31		Fall semester break - Optional intermediate exams	
November						1	1 November, All Saints Day (National Holiday)	
	7	4	5	6	7	8		Fall semester Final examinations
	8	11	12	13	14	15		
	9	18	19	20	21	22		
	10	25	26	27	28	29		
December	11	2	3	4	5	6		
	12	9	10	11	12	13		December Final examinations
	13	16	17	18	19	20	Additional week for rescheduled lectures Fall semester ends on December 20, 2019	
		23	24	25	26	27	Christmas break from December 23, 2019, to January 6, 2020	

Month	Day						Year I	Year II
January		Mo	Tu	We	Th	Fr		
				1	2	3	Christmas break from December 23, 2019, to January 6, 2020	
		6						
			7	8	9	10	Exams	
		13	14	15	16	17		
		20	21	22	23	24		
		27	28	29	30	31		
February		3	4	5	6	7		
		10	11	12	13	14		
		17	18	19	20	21		
	1	24	25	26	27	28	Spring semester starts 24 February, 2020	
March	2	2	3	4	5	6		
	3	9	10	11	12	13		
	4	16	17	18	19	20		Spring semester Final examinations
	5	23	24	25	26	27		
	6	30	31					
April	6			1	2	3		
		6	7	8			Spring semester break - Optional intermediate exams	
					9	10	Easter break from 9 to 13 April, 2020	
		13						
			14	15			Additional week for rescheduled lectures	
					16	17	Spring semester break - Optional intermediate exams	
	7	20	21	22	23	24		
	8	27	28	29	30			
May						1	1 May, International Workers' Day (National holiday)	
	9	4	5	6	7	8		
	10	11	12	13	14	15		
	11	18	19	20	21	22		
	12	25	26	27	28	29	Spring semester ends 29 May, 2020	
June		1	2				National holiday	
				3	4	5	Exams	
		8	9	10	11	12		
		15	16	17	18	19		
		22	23	24	25	26		
		29					Feast of Saints Peter and Paul - Patrons of Rome	
			30				Exams	
July				1	2	3		
		6	7	8	9	10		
		13	14	15	16	17		
		20	21	22	23	24		
		27	28	29	30	31	Summer vacations (27July to 21 August)	
August		17	18	19	20	21		
		24	25	26	27	28	Exams	
		31						
September			1	2	3	4		
		7	8	9	10	11		

Resident Faculty

Prof. Giuseppe Arbia, Statistics

Prof Stefania Bruno, Epidemiology

Prof. Americo Cicchetti, Human Resource management

Prof. Giulio De Belvis, Public health

Prof. Maria Chiara Malaguti, Law

Prof. Marco Rizzo, Accounting

Prof. Gilberto Turati, Health economics

Prof. Stefano Villa, Quality and operations management

Visiting Faculty

MANAGEMENT

Prof. Federica Brunetta (LUISS, Rome)

Prof. Gillie Gabay (College of Management Academic Studies, Israel)

Prof. Paul Gemmel (Ghent University, Belgium)

Prof. Barbara Sveva Magnanelli (John Cabot University, Rome)

Prof. Mattew Packard (Boston University, USA)

Prof. Magdalene Rosenmoeller (IESE Business School, University of Navarra, Spain)

Prof. Rosana Silvera Reis (ISG Paris, France)

ECONOMICS

Prof. Joan Costa-I-Font (London School of Economics and Political Science, UK)

Prof. Francesco Moscone (Brunel University London, UK)

Prof. Elena Pizzo (University College London, UK)

Prof. Thomas Rapp (Université Paris Descartes - Sorbonne Paris Cité, France)

Prof. Matteo Ruggeri, (Istituto Superiore di Sanità, Rome)

QUANTITATIVE METHODS

Prof. Stefano Gliozzi (IBM)

Prof. William Greene (Stern School of Business, New York University, USA)

Prof. Nuno Miguel De Sousa Lunet (University of Porto, Portugal)

LAW

Prof. Eva Villarreal Pascual (Inter-American Commission of Women - Organisation of American States, USA)

Curriculum

First year

Fall semester		
Courses	***Area***	***Credits***
Statistics and big data (Prof. Arbia, Prof. Gliozzi)	Statistics	8
International law and health (Prof. Malaguti, Prof. Villarreal)	Law	8
Management and innovation in health and social service (Prof. Brunetta, Prof. Reis)	Management	8
Quality and operations management (Prof. Villa, Prof. Gemmel, Prof. Cambieri)	Management	8

Spring semester		
Courses	***Area***	***Credits***
Financial and management accounting in healthcare (Prof. Schino, Prof. Coyne)	Management	8
Epidemiology (Prof. Bruno, Prof. Lunet)	Medicine/Statistics	8
Human resources management in complex organisations (Prof. Cicchetti, Prof. Rosenmoeller)	Management	8
Health economics (Prof. Turati, Prof. Moscone)	Economics	8

Second year

Fall semester		
Courses	***Area***	***Credits***
Pharmaeconomics and Health Technology Assessment (Prof. Ruggeri, Prof. Pizzo, Prof. Rapp)	Economics	8
Healthcare and Insurance in comparative Systems (Prof. De Belvis, Prof. Costa-I-Font)	Medicine/Economics	8
Health Econometrics and Programme Evaluation (elective) (Prof. Arbia, Prof. Greene)	Statistics	8
Theology (seminar) (Prof. Cheaib)		

Spring semester		
Courses	***Area***	***Credits***
Planning and control in healthcare (Prof. Rizzo, Prof. Gabay)	Management	8
Internship		8
Final Thesis		16

Detailed syllabi

HEALTHCARE MANAGEMENT LAB

Prof. Silvia Coretti
Prof. Stefano Villa
Prof. Maria Lucia Pace

Course Aims and Intended Learning Outcomes

This intensive course (30 hours) aims to help first year students enrolled in the Healthcare Management programme to familiarize with key concepts in economics, management and statistics at the beginning of their stay at the School of Economics in Rome. The course lasts one week and it is scheduled the first week of September before the formal beginning of regular classes. The overall objective is to provide basic knowledge in the three core areas of study in the Healthcare Management programme.

Course Content

The 'economics module' will introduce students to the principles of economics in application to individual decision makers, both consumers and firms. At the end of the module, students will:

- have basic knowledge of individual decision making
- be familiar with demand and supply
- be able to understand and use the concept of equilibrium in goods and factor markets,
- be able to discuss the efficiency of the market economy and the potential role of government intervention in the economy.

The 'management module' will introduce students to the broad field of management applied to healthcare organisations. At the end of the module, students will:

- have basic knowledge of structure and processes of organisations;
- be able to understand and classify the main features of healthcare organisations;
- be familiar with basic management terminology;
- develop basic knowledge about the accounting information system;
- be able to perform break-even point analysis.

The 'statistics module' will introduce students to the key concept of statistical analysis. At the end of the module, students will:

- have basic knowledge of descriptive statistics and the basis of inferential statistics
- be able to understand frequency tables and graphs,
- be able to use the analytical instruments of descriptive statistics (central tendency index, variability index and shape index)
- develop basic knowledge of the concept of samples
- be able to understand inferential analysis with confidence intervals and simple regressions.

Reading List

Folland, S., Goodman, A. C., Stano, M. (2007). The economics of health and health care. Upper Saddle River, NJ: Pearson Prentice Hall. Chapters 1 and 2.
Airoldi-Ravasi (editors) (2010), Introduction to management: Cases & Readings, Egea, Milano, Part I.
Levine, D., Szabat, K., Stephan, D. (2016). Business Statistics: A first course, 7th Edition, Pearson.

Assessment Method and Criteria

No assessment.

Notes and Prerequisites

This crash course is highly recommended to students who do not have a strong background in management or economics.

First year – Fall semester

STATISTICS AND BIG DATA (8 ECTS)

Prof. Giuseppe Arbia
Prof. Stefano Gliozzi (Visitng Faculty, Ibm)

Course Aims and Intended Learning Outcomes

The course aims to introduce the student to the world of Big Data. The course will be divided into two parts. In the first part the student will use the SPSS-Statistics © statistical package to apply the basic statistical methods learned in a first three-years degree course. The second part will instead be devoted to introducing statistical models and methods and machine learning approach for the treatment of large and complex amounts of data. In this second part, in addition to the use of the SPSS-Statistics © package, the student will also learn to use the SPSS-Modeller © package.
The emphasis will be on the practical aspects of implementing the various methods and models and on the interpretation of the results.
At the end of the course the student:
- Will know how to analyse structured statistical data through the use of the SPSS Statistics and SPSS Modeller © statistical software
- Will know how to distinguish between structured and unstructured data
- Will know how to distinguish between supervised models and non-supervised models

Course Content

Introduction to the SPSS Statistics package. Basic statistics (Descriptive statistics. Point and interval estimation. Test of statistical hypotheses on an average and on a percentage). Hypothesis testing on 2 averages and 2 percentages. Hypothesis testing on more than 2 averages (ANOVA) and on more than 2 percentages (CHI square). Multiple linear regression model. Nonlinear regression. Regression with dummy variables. Binomial and multinomial logistic regression. Other supervised classification models: outline of regression trees approach (CART). Unsupervised classification: hierarchical clusters. Factor analysis. Analysis of correspondences.

Reading List

Field, A. (2007) Discovering statistics using SPSS, 3rd edition, SAGE

Teaching Method

Lectures, laboratories using SPSS Statistics and SPSS Modeller © software

Assessment Method and Criteria

Optional intermediate exam on PC. In the computer lab, students will perform practical exercises using SPSS Statistics and SPSS Modeller © software. Under some circumstances, they may also carry out the test using their own PC on which the necessary programmes will be installed. If successful, the intermediate exam will account for 50% of the final grade. Final examination carried out with the same criteria as the intermediate test. Those who will successfully pass the intermediate exam, will have to perform only the second part of the final exam. The intermediate exam can only be used in the winter session at the end of the course, in the January and February appeals.

Notes and Prerequisites

In the first lesson of the course the professor will indicate to the students how to download the SPSS Statistics and SPSS Modeller © packages and how to get the codes for their installation on their own PC.
Prerequisites: a basic three-years degree course in statistics that includes descriptive statistics, probability, inductive statistical inference (point and interval estimators) and hypothesis testing. Recommended text for prerequisites: Levine, J., Szabat, K. and Stephan, D. (2018) Statistics.

INTERNATIONAL LAW AND HEALTH (8 ECTS)

Prof. Maria Chiara Malaguti
Prof. Eva Villarreal Pascual (Visiting Faculty, Organisation of American States)

TBD

MANAGEMENT AND INNOVATION IN HEALTH AND SOCIAL SERVICES (8 ECTS)

Prof. Federica Brunetta (Visiting Faculty, LUISS, Italy)
Prof. Rosana Silvera Reis (Visiting Faculty, ISG Paris, France)

Course Aims and Intended Learning Outcomes

The main goal of this course is to illustrate the key actors, trends, dynamics and frameworks for the management and innovation in the healthcare industry. During the course, the instructor will consider more perspectives of analysis in order to offer to students a heterogeneous snapshot of the theoretical and practical models and used by healthcare and life-sciences organisations (e.g. pharmaceutical companies, biotech firms, medical devices manufacturers).
By the end of the course, students will be able to develop an effective understanding and use analytic skills to make strategic decisions within such industry and to apply the main theoretical models explained during the course to real world contexts (e.g., private firms or public hospitals).

Course Content

The course is organized in 2 modules.
The first module is about the main managerial issues and strategies of healthcare organisations. The management challenges faced by hospitals, pharma companies, health institutions will be explored via theoretical lessons, practical exercises, and the discussion of real-world case studies.
The second module deepens into issues of strategic innovation in the healthcare sector. It will focus first on the basics of innovation and technology management, applied to healthcare, and then on emerging health technologies, their development and diffusion. Finally, it will cover innovative technology-based business models.

References

Elton, J., & O'Riordan, A., (2016). Healthcare Disrupted. Next generation business models and strategies. Wiley (Ch. 1, 3-7).
Ginter, P. M, Duncan, J. W. & Swayne, L. E. (2013). Strategic management of health care organisations. Jossey-Bass. (Ch. 1-5).
Readings and cases indicated by the lecturer to students at the beginning of the course.

Teaching Method

Frontal lessons, case studies, simulations, group exercises and group dynamics.

Assessment Method and Criteria

Module 1 Evaluation is composed as follows:
40% in classes activities
60% in final homework assignment
Module 2 Evaluation is composed as follows:
25% teamwork with 1 oral presentation in class
75% final written exam
Both the exams are compulsory.

Notes and Prerequisites

None.

QUALITY AND OPERATIONS MANAGEMENT (8 ECTS)

Prof. Stefano Villa
Prof. Andrea Cambieri (Chief Medical Officer, Gemelli Hospital)
Prof. Paul Gemmel (Visiting Faculty, Ghent University, Belgium)

Course Aims and Intended Learning Outcomes

GENERAL LEARNING OBJECTIVES:
To be able to design, operate, and evaluate health care quality management systems and operations.

KNOWLEDGE OUTCOMES:
Understand why quality management is needed
Understand impact of clinical decision making on quality of care
Understand impact of administrative systems on quality of care
Understand the impact of ancillary processes on the performance of healthcare organisations
Understand approaches to measuring quality
Understand approaches that have been taken in quality management
Understand strengths and weaknesses of different approaches
Understand the design and management of health care operations
Understand how to design and control a supply chain management system
Understand how to create value with healthcare operations management

SKILLS OUTCOMES:
Ability to apply basic tools of quality improvement such as flowcharting, fishbone diagrams, statistical process control, etc. in health care settings
Ability to evaluate reliability and validity of criteria, guidelines, protocols, and other decision making tools
Ability to understand case-mix/risk adjustment
Ability to apply information systems for quality measurement and improvement
Ability to identify and prioritize opportunities for improvement
Ability to determine appropriate methods of improving performance and considerations in implementing such methods
Ability to measure the performance of hospital patient flows logistics
Ability to design a supply chain management system
Ability to implement changes in the organisation of healthcare delivery processes

Course Content

Health care organisations are required to provide quality health care as a competitive necessity as well as a regulatory requirement and ethical imperative. The course aims firstly to give students a theoretical framework regarding the definition and measurement of quality in healthcare.
Secondly, students will be introduced to the traditional quality improvement techniques such as regulation, credentialing, education, and to new techniques, including continuous quality improvement, system design, practice guidelines, clinical pathways and performance reports.
The course will focus particularly on operations management issues. The use of operations management techniques, extensively applied in businesses of all kinds, has also become a necessity in health care. In order for managers to improve the quality and efficiency of health care delivery, or successfully launch new services or products, they must understand the design and management of health care operations.

References

Green and paper-less course: slides, cases studies and readings are all available on black-board.

Teaching Method

Classes consist of both lectures and discussions. Case studies will be used to introduce students to a wide range of practical operational issues in healthcare delivery.
The course is aimed primarily at those students interested in managing health care delivery processes. It will be equally valuable for students interested in careers devoted to the definition of health policies in the public and private sectors.
Finally, a good understanding of operations and supply chain management systems is becoming increasingly important for suppliers (e.g. pharmaceutical and medical devices companies) that aim to develop beneficial and lasting relationships with healthcare organisations.

Assessment Method and Criteria

For attending students, the final grade will be computed as it follows:

Individual assignment (15%)
Group work (15%)
Class Participation (10%)
Mid-term exam (30%)
Final exam (30%)

For non attending students the evaluation will be based on a single written exam on the whole programme.

Notes and Prerequisites

In your own interest and of your colleagues, please try to observe the following courtesy rules:

1. Arrive in class on time; do not leave early.
2. Keep your mobiles and laptops off; do not use wireless network emailing in class.
3. Minimize wandering in and out of the classroom.
4. Participate fully in class.
5. Pull your weight in group/joint work. Do not free-ride on your colleagues!
6. Hand in assignments on time. Late submissions are not accepted.

Participation to all classes is highly recommended.

First year – Spring semester

FINANCIAL AND MANAGEMENT ACCOUNTING IN HEALTHCARE (8 ECTS)

Prof. Rosalba Schino (Visiting Faculty, Questrom School of Business, Boston University, USA)
Prof. Joseph Coyne (Visiting Faculty, Washington State University, USA)

Course Aims and Intended Learning Outcomes

MODULE 1 (Prof. Schino): Financial Accounting and Financial Statement Analysis
Upon completion of the first module, students are expected to:

- Have learned the primary principles and methods of financial accounting and be able to apply them to the recording of transactions and creation financial statements.
- Have a proven ability to analyse, interpret, and evaluate financial statements for the purpose of understanding an organisation's operating and financial performance and making decisions regarding the provision of capital.
- Have an appreciation of the larger context of financial reporting (beyond rules and procedures).

MODULE 2 (Prof.Coyne): Cost Accounting and Control Systems
Upon completion of the second module, students are expected to have the requisite knowledge and competency to apply the following cost accounting tools and techniques:

- Time-driven activity-based costing
- Analysing cost/volume/profit relationships by healthcare product or service
- Conducting break-even analysis
- Building and analysing budgets using variance analysis
- Analysing annual physician financial performance compared to benchmarks
- Real-time electronic dashboards
- Forecasting financial, operational, and quality of care results and planning for the necessary corrective actions to improve performance, both in the short and long- term

Course Content

The first module will cover the following content:

- Introduction and Fundamentals of Financial Accounting (Accounting as a decision making tool, the accounting equation, the transaction analysis, the adjustment and closing process, construction of financial statements).
- Ability to read key Financial Statements.
- The relevance of Cash Flow Statement, the Auditors' Report, the notes to the Financial Statements.
- The Investments and Consolidated Financial Statements
- Financial Statement Analysis using key financial ratios.
- Managing the Revenue Cycle in the Healthcare Organisations

The second module will cover the following content:

- Using financial modeling to forecast Flow of Funds with value-based payments
- Managerial Accounting Basics & Cost-Volume-Profit Analysis
- Cost Allocation and Time Driven Activity Based Costing (TDABC)
- Operating Budgets and Variance Analysis
- Cost analysis and revenue cycle management under Value Based Purchasing
- Conducting "what if" analysis using different metrics in Pay for Performance (P4P)

References

FIRST MODULE:
Financial Accounting, Global Edition, 11/E, Walter T. Harrison, Charles T. Horngren, C. William Thomas, Wendy M. Tietz, Themin Suwardy
On-line textbook supplement: MAL. Students should sign-up in MAL to the instructor's course section using the information show below:
MAL Course ID for homework: schino11748
MAL Course name: Financial Accounting and Financial Statement Analysis- SP2019

Healthcare Finance: An Introduction to Accounting and Financial Management, 6th Edition, Gapenski, Louis C., AUPHA Press/Health Administration Press, 2016.

SECOND MODULE:

Gapenski, Louis C., Healthcare Finance: An Introduction to Accounting and Financial Management, 6th Edition, AUPHA Press/Health Administration Press, 2016.

Pink, George H., and Paula H. Song, Gapenski's Cases in Healthcare Finance, 6th Edition, AUPHA Press/Health Administration Press, 2018.

The Wall Street Journal (WSJ) International edition. Dow Jones offers a student discount when you register and confirm your student enrollment in this course for both the print and digital edition at Your WSJ Subscription.

Teaching Method

For the first module teaching methods include a combination of formal lectures as well as discussions and presentation of exercises related to daily topics, led by students (the discussion and presentation of exercises are graded).
Students are expected to make an effort to get familiar with the assigned readings prior to the relevant class session as well as keeping up with the homework throughout the duration of the course.

Class participation is particularly important. Students will not receive participation credit solely for attending class. Active participation includes: responding to questions, being engaged during class discussion, and keeping a professional and respectful behavior at all times in the classroom.

The second module builds on fundamentals of financial accounting concepts and financial statement analysis tools to expand students' competencies and skill sets for managing healthcare costs and strategic decision-making. Students will focus on management accounting tools and techniques used by healthcare managers in different countries to anticipate resulting costs, related revenues, and anticipated cash flows. Through case studies, students learn how to anticipate and control future costs and related revenues in a variety of organisational settings, including managed care organisations, multi-specialty medical groups, ambulatory surgery centers, community hospitals, and integrated delivery systems. The aim is to provide the cost management tools and techniques to improve efficiency (cost per unit) and effectiveness (goal achievement). The takeaways will be cost analysis techniques that can be used by healthcare managers to improve organisational performance, both in the short and long- term.

Class participation is a significant element of the course grade. Students will not receive participation credit just for showing up for class. To earn a higher participation score requires 3 elements: raising and responding to questions, demonstrating a command of the lecture material and related class discussion, and maintaining a professional and respectful behavior at all times in the classroom.

Assessment Method and Criteria

Each module counts for 50% of the total grade.
For the first module, attending students will earn their grade based on the following activities:

Evaluation Activity	Fraction of Course Grade
Pre-Assignment Chapters 1-4-	10%
First Day in-class Quiz	10%
Homework	15%
Discussion Leading	15%
Participation	15%
Final Exam	35%
TOTAL	100%

The Pre-Assignments, the First Day in-class Quiz, the Homework, and the Final Exam are all on-line.
The grade of non-attending students will be based on the scored earned at the Final Exam only.
For the second module, attending students will earn their grade based on the following activities:

Pre-Assignment	10%
Participation	25%
Assignments	15%
Case Studies	15%
Final Paper	25%
Final Presentation	10%

TOTAL 100%

The grade of non-attending students will be based on the scored earned at the Final Exam only.

Notes and Prerequisites

For the first module, prior to the beginning of the course, the instructor will make available a pre-assignment on the on-line supplement of Pearson (MAL). The pre-assignment is graded and is expected to be completed a few weeks before the beginning of classes. To this end, it is crucial for the students to proactively purchase the textbook and the access to MAL timely. The instructor will post on blackboard more details and information on this topic in due course.

For the second module, post a critique (200 words max per article) by the published deadline of 1800 on Sunday, May 20, 2020, in Word that summarizes two key articles from the Wall Street Journal (WSJ) International Edition (articles published within the year May 1, 2019 - April 30, 2020) on health payment reforms that are occurring in the EU, UK, US, China, India, Turkey and countries worldwide, and to document the financial impact of these reforms on healthcare delivery systems that provide and deliver healthcare services in that country. You can choose any country for this assignment. The pre-assignment is graded and is expected to be completed and posted to Blackboard by the published deadline of May 20, 2020. Toward that end, it is essential for all students to purchase the required textbook, case book, and to obtain access to the WSJ International Edition. The instructor will post on Blackboard more details and information on this topic in advance of the course.

For the first module, Professor Schino's office hours are conducted onsite by appointment for the duration of the course period of Monday March 9 – Friday March 13, 2020 (subject to final course schedule).
For the second module, Dr. Coyne's office hours are conducted onsite by appointment for the duration of the course period of Monday May 18- Friday May 29, 2020 (subject to final course schedule).

EPIDEMIOLOGY (8 ECTS)

Prof. Stefania Bruno

Prof. Nuno Miguel De Sousa Lunet (Visiting Faculty, University of Porto, Portugal)

Course Aims and Intended Learning Outcomes

The course is aimed to provide students the quantitative dimension of health through the principles and methods of modern epidemiology in order to make them able to design and carry out epidemiological studies, to correctly read them and interpret data. Furthermore, the course will give some insights into specific issues of applied epidemiology.
At the end of the course students should:
1. have acquired the knowledge and understanding of the main measures of occurrence that concern the health of the populations, the health risk of the populations and the association measures that link the exposure to the effect of population health;
2. be able to know how to read and interpret epidemiological studies, meta-analysis, epidemiological reports, they should have acquired the skill to interpret the documents drawn up by the main research institutes with critical analysis of the results;
3. have developed useful skills to independently make choices on the use of measures to be used in the epidemiological field;
4. have acquired a rigorous and essential language that allows them to communicate clearly and effectively the knowledge acquired in the epidemiological field.

Course Content

1. Introduction to epidemiology
Definition and scope of epidemiology
Epidemiology and public health
2. Measures of occurrence: main concepts
Proportion and ratio,
Prevalence and incidence;
3. Measures of association
Absolute measures
Relative measures
Attributable and impact measures
4. Principles of study design
Experimental trials and quasi experimental studies: aims, design and conduction, limits and strengths
Cohort studies: aims, design and conduction, limits and strengths
Case-control studies: aims, design and conduction, limits and strengths
Cross-sectional studies and ecological studies: aims, design and conduction, limits and strengths
5. Systematic review and meta-analysis
6. Confounding and effect modification: main concepts
Analysis of confounders and effect modifiers
7. Standardization
8. Bias
9. Power analysis
10. Epidemiology of chronic diseases
11. Exposure assessment
13. Evaluation of diagnostic tests and study results
14. Studies examples

References

Katz DL, Elmore JG, Wild DMG, Lucan SC. Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health. Elsevier; 2014.
Fletcher RH, Fletcher SW, Fletcher GS. Clinical Epidemiology: The Essentials. LWW; 2012.
Rothman KJ. Epidemiology: An Introduction. Oxford University Press; 2012

Teaching Method

Lectures. Self-learning, problem-based learning, practical group activities.

Assessment Method and Criteria

The final exam will be performed through multiple choice items investigating: a) the knowledge of how to measure health phenomena; b) the understanding of study design principles and applications. The final mark will be based also on the group work carried out during classes; improvements of this classificatio are possible through a short test, which includes the reading of an excerpt of a paper and a few questions (open-ended) based on that. The test and the assignment will have different weight in the final mark: 75% for the test and 25% for the assignment. Students who, for any reason did not attend the course and carry out group work, can carry out the exam and, in addition to the exam, on the same day of the exam, advising the teachers at least 10 days in advance by e-mail, they can carry out a short test, which includes the reading of an excerpt of a paper and a few questions (open-ended) based on that.

Notes and Prerequisites

Students will also have to book the exam via Blackboard. The Teachers are available for any explanations, clarifications and programmed extra support by requesting via e-mail.

HUMAN RESOURCE MANAGEMENT IN COMPLEX ORGANISATIONS (8 ECTS)

Prof. Americo Cicchetti
Prof. Magdalene Rosenmoeller (Visiting Faculty, IESE Business School, University of Navarra, Spain)

Course Aims and Intended Learning Outcomes

The course is articulated into two parts: the first, held by prof. Americo Cicchetti is aimed at providing students with an extended knowledge of Human Resource Management (HRM) tools and their use within the healthcare sector. Moreover, it provides a focus and practical laboratory on the use of tools aimed at planning and managing competencies within the sector. The second part, held by prof. Magdalene Rosenmoeller, addresses the topic of how innovation affects HRM in healthcare. Challenges and opportunities in areas such as patient safety and quality, patients' empowerment and information systems are discussed.

PART 1
Healthcare organisations are characterized by the central role of human capital in determining quality of care and financial performance. In hospitals and in other HCOs there exists a great variety of professional profiles, while the role of medical doctors is a pivotal one. Nevertheless, clinical outcomes are determined not only by individual capabilities of single physicians, but also depend on their engagement, motivation and availability to cooperate with other healthcare professionals. For this reasons HCOs are a challenging environment in which to apply HRM methods and tools.
The course aims at providing students with basic knowledge regarding human resource management processes and tools within healthcare organisations. The structure of the course ensures a full understanding of the role of HR functions within healthcare organisations' strategy and activities. Moreover, students will have the opportunity to develop specific abilities in reference to the use of innovative HR tools in the area of personnel evaluation.

PART 2
The purpose of this model is to explore the different aspects of management of human resources in the health sector. The course provides an insight into this complex topic, which will sharpen the student's ability to understand the way in which innovation affects the health care sector and in particular the workforce, and how it can best be managed: identify opportunities for innovation, and adapt the management skills needed to design and implement operational and technological change. Additionally, it might provide an opportunity to explore different job opportunities in the extended sector.
It addresses issues related to the workforce: management of technology, knowledge and innovation in a sector of high growth. We will identify challenges and (possible business) opportunities, in areas such as patient safety and quality, patients' empowerment and information systems (eHealth).

Course Content

The course is structured as a mix of lectures, active discussions based on case studies (or incidents) and practical laboratories aimed at transferring basic competences and tools with regard to the application of a competence model for healthcare personnel. Students are strongly invited to participate actively to lessons.

PART 1

1. Introduction, Course Overview
Lecture and open discussion
Videos: "Monash University on HRM"
Readings:
"Characteristics & Qualities of a Personnel Manager"
"The Role of HR Manager in Health Care"

2. From strategy to people
Lecture and open discussion
Videos: "Steve Jobs on organisational model"
Case Study HBS: "Development and Promotion at North Atlantic Hospital"

3. Medical management and clinical leadership
Lecture and open discussion
Readings: Doctors and managers: a problem without a solution? (Bmj n. 326, 2003)
What doctors and managers can learn from each other? A lot (Bmj n. 326, 2003)

Case study HBS: Hospital Clínic de Barcelona

4.Assessing jobs, persons and performance
Lecture and open discussion
Laboratory

5.Qualitative and quantitative methods
Lecture and open discussion
Case Study HBS: “Performance Management at Vitality Health Enterprises, Inc”

6.Pay for performance in medicine
Readings: “Successes and Failures of Pay for Performance in the United Kingdom”, NEJM 2014.

7. What is a “competence model”?
“Allied Health Competency Model”

8. From job families to professional roles
Readings: “Job families and other taxonomies”
Using competence model: Introduction to team work on competence model
Working session

9. Final presentations and closing remarks
Preparation of presentations
Presentation of results by each team

PART 2

10. A complex sector and complex care organisations.
Lecture Discussion
Read: Four Habits of High-Value Healthcare Organisations, R. Bohmer, NEJM, 2011

11. The Health Sector and the (Changing) Role of Professionals
Lecture Discussion
Watch: How do we heal Medicine, Atul Gawande, 2012 (Ted Talk)

12. HHRR Policy: Needs, Strategy and Planning
Lecture Discussion
Read: Assessing future health workforce needs. Gilles Dussault et al. Policy Brief, 2010

13. The European Context for Health Professionals
Lecture Discussion
Read: Action Plan for the EU Health Workforce, EC, SWD (2012) 93 final
Read: Perspective on the Professional Qualification Directive. Eurohealth, 17,4 2011

14. Knowledge Management
Case Discussion
Prepare HBS 9 603 066Intermountain Health Care (2013)

15. Continuous Education / Role Professional Journals
Lecture Discussion
Check: www.who.int/genomics/professionals/education/en/; www.nejm.org/

16. Realising the Technology Revolution in Health Care
Case Discussion
Prepare: IESE P1102 EN - TMC – Telemedicine Clinic

17. IT Technologies: changing paradigm, changed skills set
Lecture Discussion
Check; www.skillsforcare.org.uk

18. Integrated Care: Implementation of Innovation
Case Discussion

Prepare - IESE P1148E Innovating in the Basque Country. Moving to Chronic Care

19. Integrated Care changing role for HHRR
Lecture / Discussion
Read Think integration, think workforce: Three steps to workforce integration, Centre for Workforce Intelligence, 2013

20. Managing for Quality
Case Discussion
Prepare: HBS 9-302-050 Children's Hospital and Clinics
Read: Why Hospitals don't learn from Failures, A. Tucker et al. Californian Rev.Management 2003

21. Commit to Excellence / Employee Satisfaction
Lecture / Discussion
Read: 10 Free (Or Very Inexpensive) Ways to Engage Staff, Quint Studer

22. The HHRR Managers Tasks
Lecture Discussion
Read Chapter 8 & 9 Recruitment, Interviewing, and Selection Strategies / Maximizing Performance Management and Evaluation. JE Pynes - Human Resources Management for Health Care Organisations: A Strategic Approach. Jossey Bass 2012

23. Career Development – Professional Growth
Lecture Discussion / Exercise
Check How to find and do work you love | Scott Dinsmore | TEDx (www.yoututbe.com).

24. Leadership in Innovation and Creativity
Case Discussion
Prepare Case Pina Bausch: Leadership as collective Genius (ESMT 412-0132-1)

25. Bases of Leadership / Clinical Leadership
Lecture Discussion
Read NEJM, Leading Clinicians and Clinicians Leading, R. Bohmer, 2013

26. Creative Teams / Design Thinking
Team Exercise – Lecture / Discussion
Prepare: Leading Teams (MSH Managers Who Lead, 2008)

27. Report Presentations. Conclusions Wrap Up
Lecture Discussion
Assignment

Teaching Method

Teaching methods are chosen to foster students' engagement and participation. Short academic lectures are sided with case study discussions, interactive sessions and laboratories. Regarding case studies, students are asked to read assigned documents in advance, before the lesson. Students are also asked to work in groups of 5-6 people and to prepare case discussions of about 30 minutes.
Ten hours of the course are dedicated to a specific laboratory in which students, organized in groups (5-6 people), will have the chance to design job profiles under the guidance of the teacher. Groups are suggested to work during free time and will provide a formal power point presentation.

Assessment Method and Criteria

The evaluation is based on the assessment of participation in class, on the results of the group works (and of the laboratory) and on the results of a final written test.

Notes and Prerequisites

None.

HEALTH ECONOMICS (8 ECTS)

Prof. Gilberto Turati
Prof. Francesco Moscone (Visiting Faculty, Brunel University London, UK)

Course Aims and Intended Learning Outcomes

Health economics is a growing field of studies in economics concerned with the use of economic concepts to analyse issues related to health and healthcare. The goal of this course is to discuss selected topics within this field which are of utmost relevance for the management of healthcare organisations. The course will cover both micro- and macroeconomic issues. At the macro level, attention will be paid first to explaining cross country variation in health spending, with a particular emphasis on the role of productivity and the role of technology and innovation. At the micro level, the focus will be on the market for hospital services, which still represent about half of the healthcare spending in many countries. On the demand side, the course will analyse the choice of patients and the importance of information and networks. On the supply side, the course will focus on organisational design: at the firm level, discussing the role of not-for-profit hospitals as compared to physicians' cooperatives, for-profit clinics, public hospitals; at the market level, analysing the quasi-market model and the role of incentives provided by different payment systems; at the sub-national level, providing a discussion of the impact of federalism and decentralization. Market outcomes will be finally considered in the light of inefficiency in spending and inappropriateness in the services provided. All the topics will couple theoretical concepts with the discussion of real world cases.
After the course the student:

- will have knowledge of the determinants of healthcare spending and their role in explaining the observed evolution of public and private expenditure
- will have knowledge of the economic arguments relevant for the analysis of the demand and the supply of hospital services
- will be able to apply the knowledge acquired during the course for critically discussing real world cases related to patients' choice, the organisation of hospitals, the organisation of the market for hospital services, the decentralization of healthcare regulation to sub-national governments
- will be able to apply the knowledge acquired during the course to evaluate the efficiency and the inappropriateness of healthcare provision at different levels of aggregation
- will be able to use economic concepts in their analysis and reports.

Course Content

The course is designed as an advanced course in health economics for students interested in becoming professional managers in the healthcare industry. The programme is divided in four broad parts:

PART I. understanding healthcare spending

The economic approach to the analysis of health and healthcare
Inequalities in healthy life years across countries

The determinants of healthcare spending
Observing the dynamics of expenditure
The role of innovation and technology

PART II. the demand side of the market for hospital care

The traditional approaches
The Grossman model: health shocks and the demand for care

Information and networks
Availability of information and patients' networks
The quality of care

PART III. the supply side of the market for hospital care

The hospital as a firm
Not-for-profit providers
Incomplete contracts and a theory of the ownership of the firm
Mixed oligopolies and beyond

The hospital as a key market player
Incentives in the quasi-market model
The behavior of different types of providers and the role of competition

Decentralization and fiscal federalism
The regulation of hospitals at the sub-national level
The differences across sub-national systems

PART IV. inefficiency and inappropriateness

How to evaluate outcomes
Methodologies to assess inefficiency and inappropriateness
DEA and stochastic frontiers

Case studies
De-hospitalization
C-sections

References

Each topic is covered by a list of selected references (mostly scientific journal articles) that will be provided by instructors and discussed during the lectures. Additional readings will be taken also from: Costa-Font J., Greer S. L. (eds.) (2013), Federalism and decentralization in European Health and Social Care, Palgrave MacMillan; Baltagi B. H., Moscone F. (eds.) (2018), Health Econometrics, Contributions to Economic Analysis, Emerald Publishing; S. Glied and P. C. Smith (eds.) (2011), Oxford Handbook of Health Economics, OUP; Hansmann H. (1996), The ownership of enterprise, CUP.

Teaching Method

Lectures and discussion of case studies.

Assessment Method and Criteria

Evaluation is based only on a written exam lasting 60 minutes. The exam is made of three sections. Section 1 comprises 10 multiple choice questions on basic concepts discussed during the course. Each correct answer is worth 1 point; each wrong answer provides -0.5 points. Sections 2 and 3 are open questions and are thought to test the ability of students to apply the knowledge acquired during the course and to communicate using key economic concepts what they have learned. Instructors will evaluate the completeness and accuracy in answers to mark exams.

Notes and Prerequisites

Students are required to have basic knowledge of key concepts in microeconomics and key concepts in statistical inference and regression analysis to fully understand the arguments discussed during the course.
Students are kindly asked to refer to the Blackboard website for updated information and additional teaching material related to the course.

Second year – Fall semester

PHARMACOECONOMICS AND HEALTH TECHNOLOGY ASSESSMENT (8 ECTS)

Prof. Elena Pizzo (Visiting Faculty, University College London, Uk)
Prof. Thomas Rapp (Visiting Faculty, Université Paris Descartes - Sorbonne Paris Cité, France)
Prof. Matteo Ruggeri (Visiting Faculty, Istituto Superiore Di Sanità, Rome)

Course Aims and Intended Learning Outcomes

Pharmacoeconomics and Health Technology Assessment (HTA) is intended to introduce students into the complexity of medical decision making process. More specifically, Pharmacoeconomics and HTA procedures aim to provide scientific based and transparent information by mean of statistical modelling techniques whose peculiarity is to match clinical outcomes and economic data extrapolated from different scientific sources.
At the end of the course, students will be able to:

- understand the importance of the general topics of pharmacoeconomics and health technology assessment as a method to systematize and orient information related to a new medical technology;
- use Bayesian analysis and health econometrics techniques in order to create a decisional framework to assess a new medical technology;
- derive information from clinical and economic literature and datasets;
- formulate an empirical strategy in order to evaluate the cost effectiveness of a health technology;
- populate a pre-existing decision model in order to adapt results to support decision makers across different jurisdictions;
- build up a decision model with Microsoft Excel and VBA in order to assess the cost effectiveness and the budget impact of new medical technologies;
- perform a critical assessment of the quality of health economics evidences;
- perform a critical assessment of the level of generalizability of health economics evidences;
- present and discuss results of a health economics evaluation using the appropriate tools and language, coherent with the most updated international guidelines for the presentation of pharmacoeconomics evidences;
- be able to progress in the study of more advanced pharmacoeconomics techniques and become experienced in order to use them at a professional level.

Course Content

Introduction (Ruggeri)
Decision making in healthcare: normative needs between rationing and rationalization. Welfarist and Rawlsian approaches

PART 1 (Pizzo)
Basic elements for decision making in health care
Quality Adjusted Life Years and methods for extrapolation
Cost effectiveness, cost utility and cost benefit analyses
Discount rates

PART 2 (Ruggeri)
Introduction to modeling for health economics evaluations
Decision trees and Markov models. Introduction to dynamic models
Bayesian analysis and modelling
Handling uncertainty across available information. First and second order uncertainty.
Relaxing structural assumptions alongside Markov models
Incorporating heterogeneity within Markovian frameworks
Expected Value for Perfect Information, Expected. Value for Partial Parameter Information. Expected Value for Sample Information

PART 3 (Rapp)
Interpolating and extrapolating clinical data: statistical methods for survival analysis. Linear and non-linear estimates. Generalized Linear Models, Cox, Weibull and Gompertz regressions. Bayesian meta-analysis.
Interpolating and extrapolating cost data: Heckman decomposition.
Using observational and real world data: quasi experiments, difference in differences methods.

Methods of classification to handle heterogeneity and Big Data. Interval and functional data (Ruggeri)

References

Briggs, Klaxton, Sculpher. Decision modelling for health economic evaluations. Oxford University Press 2011

Drummond, Torrance, Stoddart. Methods for the Economic Evaluation of Healthcare Programmers. Oxford University Press, 2015

Teaching Method

Classes are organized in frontal sessions. Pre-reading will be assigned along with specific tasks. Lab sessions will be organized in order to familiarize with analytical tools and their use for health economics modelling.

Assessment Method and Criteria

Students will be administered a written exams plus final project work. In the written exams part 1, 2 and 3 will be separate and weighted 33.3% each. In order to pass the exam students are expected to achieve a minimum score of 18/30 for each part. The written exam will include either exercises and open -ended questions. The exam can be split into two parts being administered: (1) during the midterm week; (2) at the end of the term. Topics included in the two parts will be coherent with the programme schedule. Non attending students will be administered the exam with the same modality and are expected to acquire technical skills needed for the exercises by: (1) reading the slides presented in class where full-solutions to each typology of exercise will be provided (2) doing homework. Nevertheless, attending classes is strongly recommended in order to maximize the probability of getting full marks. Project work will increase the final mark allowing a bonus of maximum 4/30.

Notes and Prerequisites

Students are expected to have a good proficiency in technical and scientific English. Basic knowledge of statistics and good knowledge of Microsoft Excel and VBA are appreciated.
Past experience and the peculiarity with respect to other programmes of the topics covered in this course allow to encourage the achievement of good results as long as they are considered a key driver to increase student's chances for good positions in the job market of healthcare consultancies, pharma and medical devices companies, research institutions.

HEALTHCARE AND INSURANCE IN COMPARATIVE SYSTEMS (8 ECTS)

Prof. Antonio Giulio de Belvis

Prof. Joan Costa-I-Font (Visiting Faculty, London School Of Economics And Political Science, UK)

Course Aims and Intended Learning Outcomes

The main course objectives are:
1. To provide a way of thinking about health care insurance
2. Understand the different health systems designs
3. A clear analytical way of examining health care reforms and health systems, according to an economic and a public health perspective
4. To understand the policy challenges of ageing, innovation and payment design in the health sector.

At the end of the course the student:
- Will know the main theoretical models that explain the organisations, governance and management of healthcare systems;
- Will be able to define the main domains of functioning in healthcare systems;
- Will be able to build a dashboard of indicators to measure the performance of healthcare systems;
- Given a public health issue (e.g.: vaccination, non- communicable diseases, etc.) will be able to compare the main functions, organisation of services (i.e., health promotion and prevention, diagnostics, treatment, follow up and rehabilitation), healthcare and non-healthcare interventions and policies among a panel of OECD countries.

Course Content

The course will first outline the approaches to analyse the organisation, financing and delivery of health services among different health care models.
We will classify and describe the main institutional framework for health policy and the process, content and implementation of this policy.
After classifying the models, we proceed by looking at the main dimensions of the health systems performance and how to compare performance in primary, secondary and tertiary care across the several health models.
Attention will also be paid to specific topics like health insurance, long term care funding, decentralisation, and health inequalities.

References

Smith EC, Mossialos E, Papanicolas I, Leatherman S. Performance Measurement for Health System Improvement: Experiences, Challenges and Prospects. 2010, Cambridge University Press, New York.
Ferre F, de Belvis AG, Valerio L, Longhi S, Lazzari A, Fattore G, Ricciardi W, Maresso A. Italy: Health System Review. Health Syst Transit. 2014 Sep;16(4):1-168.
de Belvis AG, Ferrè F, Specchia ML, Valerio L, Fattore G, Ricciardi W. The financial crisis in Italy: implications for the healthcare sector. Health Policy. 2012 Jun;106(1):10-6. doi: 10.1016/j.healthpol.2012.04.003.
Costa-Font, Joan and Turati, Gilberto (2017) Regional health care decentralization in unitary states: equal spending, equal satisfaction? Regional Studies. ISSN 0034-3404
Costa-Font, Joan (2017) The National Health Service at a critical moment: when Brexit means hectic Journal of Social Policy, 46 (4). 783-795. ISSN 0047-2794
Costa-i-Font, Joan and Mas, Núria (2016) 'Globesity'? The effects of globalization on obesity and caloric intake Food Policy, 64. 121-132

Teaching Method

The format of this course is a combination of lectures, case discussions, and readings. We will employ the following teaching methods:

(a) Readings from textbooks: To provide basic structure, concepts and techniques.

(b) Readings from journals: To augment the textbooks and provide more rigorous intellectual foundation.

(c) Lectures/Classes/Discussions: To create a coherent framework of studying the source material; to give students a chance to ask questions and clarify their understanding.

(d) Case studies: To apply what has been learnt to real life situations.

Active student participation is essential in the classes. In the classes, the lecturer will introduce the topic/case/experiment/exercise and lead the discussion. Students are encouraged to present pre-assigned material and lead part of the discussion in the class group. Pre-assigned reading of cases and exercises is essential.

Practicals

Evaluation of health care systems; Performance indicators.

Assessment Method and Criteria

The exam is composed of written questions regarding all modules.
The evaluation is based on two elements:

- Group work on the organisations, health needs assessment, governance, allocation and health and non health policies and activities on a public health issue in a given OECD country
- Final written test on the second part of the programme.

All the elements of evaluation (group work and final examination) are expressed in 30/30.
All the other details concerning the exam procedures will be given out by the Lecturer at the beginning of the course.

Notes and Prerequisites

None.

HEALTH ECONOMETRICS AND PROGRAMME EVALUATION (8 ECTS)

Prof. Giuseppe Arbia

Prof. William Greene (Visiting Faculty, Stern School of Business, New York University, USA)

Course Aims and Intended Learning Outcomes

The course aims at introducing the student to a rigorous study of the basic econometric models by studying the statistical properties of the various parameter estimators. It also aims at introducing the student to the R© statistical package and to correctly interpret the results of the estimates.

At the end of the course the student:
- will know the properties of the various estimators and will therefore be able to choose the best in each specific case
- will know how to estimate various types of regression models with the use of the R © statistical software
- will know how to accurately interpret the meaning of the estimated parameters and the different statistical tests calculated to complement the regressions

Course Content

Simple linear regression, ordinary least squares estimate (OLS). Maximum likelihood estimation. Method of moments estimation. Multiple linear regression. Violation of the hypotheses of validity of OLS: Normality, Heteroscedasticity, Temporal and Spatial Autocorrelation. Discrete choice models and non-linear regression. Use of econometric models to test the effectiveness of health programmes.

References

Arbia, G. (2014) A Primer for Spatial Econometrics: With Applications in R (Palgrave Texts in Econometrics), Palgrave MacMillan
Greene W. (2018) Econometric Analysis, 8th Edition, Pearson

Teaching Method

Lectures, laboratories with the use of the R © software

Assessment Method and Criteria

Optional intermediate exam on PC. Students will carry out practical exercises in the classroom with the use of their own PC on which the free software R © will be installed.
If successfully, the intermediate exam will account for 50% of the final grade.
Final examination carried out with the same criteria as the intermediate exam. Those that will have successfully passed the intermediate exam, will have to carry out only the second part of the final exam.
The intermediate exam can only be used in the winter session at the end of the course, in the January and February appeals.

Notes and Prerequisites

Prerequisites: a basic course in statistics. Introduction to the simple linear regression model.

Second year – Spring semester

PLANNING AND CONTROL IN HEALTHCARE (8 ECTS)

Prof. Marco Giovanni Rizzo

Prof. Gillie Gabay (Visiting Faculty, College of Management Academic Studies, Israel)

Course Aims and Intended Learning Outcomes

The aim of the course is to enable students to develop specialised knowledge of performance measurement systems in healthcare organisations, including how they can contribute to measure the level of strategy implementation. A further aim is to enable students to develop the ability to use relevant concepts in discussions of strategy implementation; profit goals and strategies achievement; techniques of profit planning; balanced scorecard and transfer pricing.

On completion of the course, students shall be able to:

- explain relevant advanced concepts of planning and control in healthcare, associated with models and instruments of performance measurement; identify relevant issues of the design, implementation and follow-up of a healthcare organisation's control system and patient's cantered care approach (PCC); demonstrate an integrated view of strategic leadership and controlling processes; categorise different types performance areas and indicators; demonstrate understanding of the meaning of critical thinking and reflection in academic texts and seminars;
- use concepts and models of planning, control and performance measurement systems for description, analysis and discussion of the new or unfamiliar managerial issues and practices in healthcare; make proposals concerning planning and control in healthcare, including the performance measurement system with a special focus on managing strategic tensions, diagnostics and control;
- reflect on financial and organisational control from different perspectives, including an ethical perspective;
- critically analyse the consequences of the implementation of different strategies and performance measurement systems' decisions in speech and writing;
- develop the learning skills necessary to for them to continue studying in a largely self-directed or autonomous way or apply for managerial positions.

Course Content

The first module of the course deals with the managerial challenges in health today and in the future and the organisational processes that assist managers to attain organisational goals and optimal performance. The second module focuses on the creation of the performance measurement systems. The first module will cover the following contents:

- foundations for implementing strategies:
- organisational tensions to be managed;
- basics for successful strategy;
- organizing for performance;
- using information for performance measurement and control;
- achieving profit goals and strategies:
- using diagnostic and interactive control systems;
- aligning performance goals and incentives;
- identifying strategic risk;
- managing strategic risk;
- levers of control for implementing strategy.

The second module will cover the following contents:

- creating performance measurement systems;
- the profit plan;
- integrated reporting;
- linking performance to markets;
- building a balanced scorecard.

References

Robert Simons, Performance measurement and control system for implementing strategy. Pearson. New International Edition (Chapters: 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14)
Further materials will be posted on Blackboard.

Teaching Method

Teaching methods include formal lectures as well as the discussion of case studies and exercises in order to enhance students active participation and learning. Class participation is strongly recommended.

Assessment Method and Criteria

Grading will be based on written exams including both essay questions, exercises and short case studies according to the official exam schedule.
Attending students have the opportunity to accomplish the exam in two stages. More specifically, attending students will be expected to take a mid-term and an end-term test, respectively covering the first (fist module topics) and the second parts (second module topics) of the course and counting for 50% and 50% of the final grade. The mid-term test will be offered only once and the grade will be determined for 60% by written exam (exercise and theory) and 40% by a team class assignment. The end-term test: (i) will be offerd to the students that dit not fail in the mid-term exam; (ii) will be based on the topics of the second module; (iii) will be offered in the first date of final exam according to the official exam schedule.
Students who (i) choose not to take these two tests, (ii) fail at least one of these tests, or (iii) choose to retake the exam will be offered a comprehensive final exam according to the official exam schedule.

Notes and Prerequisites

Basic knowledge of management accounting is required. Students who do not have such knowledge are responsible for acquiring it to the extent necessary during the course.

INTERNSHIP (8 ECTS)

Prof. Susanna Di Martino (Academic Internship Tutor)

The Curricular Internship

A curricular internship is a valuable opportunity for students to experience the workplace and develop professional, interpersonal, and organisational skills, as well as a means to complete their degree programme.

Types of Curricular Internship

There are two types of curricular internships:

a) CREDIT-BEARING INTERNSHIPS

This type of internship is for students who have earned the expected total credits after completing Year One of the degree programme (i.e., 64 ECTS for HEMA students) with an average grade of at least 26/30 and which can be used as an alternative to an elective Year Two exam. All prerequisites for a credit-bearing internship must be fulfilled before the internship starts. The internship has a value of 8 ECTS and is graded as an exam. A credit-bearing internship has a minimum duration of 220 hours, equivalent to two months of full-time work or three to four months of part-time work. The focus of the internship may not be used as a degree thesis topic.

b) NON-CREDIT-BEARING INTERNSHIPS

This type of internship is for students who

i. have not met the prerequisites for credit-bearing internships (i.e., they have not earned the expected total credits after completing Year One of the degree programme and/or they do not have an average grade of at least 26/30) or
ii. have already taken Year Two elective exams or
iii. wish to use the focus of the internship for their degree thesis.

Academic Internship Tutor

The university internship tutor advises students on the selection of host companies and placement offers, and is involved in the assessment process of internship activities undertaken and the issuance of relative credits. Refer to the Stage and Placement Office for local internships or the Global Engagement and International Education Office for internships undertaken outside Italy in order to receive relevant detailed administrative information.

How to Apply

For either type of internship, students must inform their internship tutor by submitting an internship application and related documentation, including their electronic CV, no later than two months before the intended start of the internship.
Students are then responsible for finding a suitable host company, with the support of their internship tutor, as described in point 5 below.

Selecting The Host Company

Undertaking an internship and finding/selecting a host company requires students' active participation.
Internships are either publicised by the university or found and arranged directly by the participating student through personal contacts with the host company.

i. If **publicised by the University**, the relevant information will either be available online at http://step.unicatt.it or via internship tutors' announcements on Blackboard or via email.

Students are responsible for their own internship applications and must follow instructions in the internship postings. A host company may have an internship available for a student with specific qualifications and skills set, or may have an immediate need to fill the internship position. In this case the tutor may select a suitable candidate and forward that student's CV to the company.

Any communication regarding internships will be sent to students' university email addresses. Students should therefore be sure to check their iCatt email accounts regularly.

Internships placements are finalised after a successful interview with the prospective host company. It is therefore each student's responsibility to adequately prepare for their own interview.

ii. If arranged directly by the participating student through personal contacts with the company, the internship tutor will contact the company and make sure that the internship opportunity is appropriate and valid. For a credit-bearing internship the tutor will check that requirements are met for the assignment of credits.

A valid internship agreement must exist, or be established, between the host company and the university. If no agreement is in place it is the student's responsibility to inform the company of the procedure which is available online at http://step.unicatt.it. An internship cannot begin until there is an agreement in place.

If there are any uncertainties about the recognition of credits towards their degree, it is the students' responsibility to get clarification from the internship tutor before the internship commences.

CREDITS WILL NOT BE GIVEN FOR THE FOLLOWING ACTIVITIES:
- duties carried out in close contact with persons related to the candidate in any way;
- internship activities that have already been used for credits towards an undergraduate and/or specialising master programme;
- internship activities already underway or completed.

Setting Up a Curricular Internship

Curricular internships, whether credit-bearing or not, must always be set up online at http://step.unicatt.it
The host organisation normally starts the process by filling in an online form (Training Project or *Progetto Formativo*). The host company, the student and the University (via the internship tutor) must then all three accept the terms and the content of the project via an online procedure.
Details of the procedure can be found on the Degree Programme webpage.

Fulfilment of Terms and Registration of Hours

Whilst undertaking an internship, students must fulfil the terms and conditions agreed upon during the selection process and as set out in the Training Project document.
Students must keep their tutor updated on progress during the internship and are responsible for contacting their tutor should any changes be made to the content of the Training Project.
Students are also responsible for keeping a register of hours spent at the host company. Registers are available online.
If a tutor becomes aware that an internship student is not fulfilling the terms and conditions of the internship, the tutor may request that the internship be suspended and the issuance of credits be withheld.

Internship Assessment by Host Companies

The host company will be expected to submit a final assessment at the end of the internship (via an online form available at http://step.unicatt.it). Issue of credits and grades for a credit-bearing internship is dependent on a satisfactory assessment of the student's performance.

Issuance of Credits (For Credit-Bearing Internships)

It is each internship student's responsibility to inform the internship tutor when the training activity has been concluded.
At the end of the internship, the student will produce an "Internship Report" and the final grade (based on the standard 30-point scale) will be assigned both on the evaluation of the host company tutor and on the evaluation of their final report by the academic internship tutor.
The following documentation must be submitted to the internship tutor (preferably at the same time) in order for credits to be issued:

- the original copy of the attendance register showing attendance of a minimum of 220 hours at the host company: the register must be signed and stamped by the host company;
- a final report on the curricular internship with details of duties carried out and learning outcomes achieved (the final report cannot be used as part or whole of the final degree thesis);
- the statement of internship completion, which is obtained by registering for a relevant exam call and which is then formally certified by the tutor with assignment of the approved credits.

Incomplete documentation may prevent the approval of curricular internships and the issuance of credits.
After assessing and approving the documentation, submitted within the specified deadlines, and after receiving the host company's evaluation (as set out in the previous point), the tutor will record relevant credits and grades as required.
The internship tutor's assessment of credits and grades, if applicable, is final. Students who do not accept the assigned grade will have to obtain credits in an alternative way (via a different internship or an elective course). Similarly, students who do not fulfil the terms of their internship or who fail to complete their internship must select an alternative way to obtain credits.
Records are normally received by Student Services at the end of the exam session in question and in time for registration for the final degree exam session. Should urgent registration of credits be necessary, students should contact their internship tutor in good time.

Terminating a Curricular Internship

Students needing to terminate their internship in advance with respect to the agreed terms must inform the host company and the internship tutor immediately setting out their reasons for doing so.
The host company is then required to register this online via http://step.unicatt.it.

If an internship is terminated before attendance of the minimum number of hours is reached, credits will not be issued. Termination in advance may also affect grades for the internship.

An internship can also be terminated if students do not fulfil the terms of the training activities, in which case the relevant credits will not be issued by the internship tutor.

If an internship is terminated, or if the terms of an internship are not fulfilled or if the credits are not issued, students will have to make up for the missing credits by selecting an alternative course of the same duration to put into their study plan.

Extension of A Curricular Internship

A curricular internship can be extended provided that the overall duration of the internship does not exceed six months and that it does not continue beyond the completion date of the degree programme.
If a host company wishes to extend a student's work experience beyond the stipulated six months, it must set up a traineeship of a different nature, which cannot be credit bearing. However, this extended internship can be used for a final degree thesis.

Internships Abroad

The University encourages students to undertake their internship or work experience abroad.
There are three types of internships abroad:
(A) **internships offered by companies abroad (**posted on http://step.unicatt.it);
(B) **internships instigated by students**;
(C) **internships offered** within the framework of agreements established by the **Global Engagement and International Education Office**:
https://goabroad.unicatt.it/goabroad-programmi-ucsc-network-internships-abroad

Procedures for setting up a curricular internship are as set out above in this document.
For type C internships (above), students will receive an email confirming acceptance of applications from the Global the Engagement and International Education Office.

FINAL THESIS (16 ECTS)

The final examination for the Master's Degree Programme (*Laura Magistrale*) consists of a discussion of a final thesis written on a topic previously agreed with a supervising faculty member (*Relatore*) for the relevant discipline. The discussion of the thesis will also involve a secondary supervisor (*Correlatore*) who is preferably suggested by the primary supervising faculty member.

An original contribution to the field and its advancement

The thesis work required for a graduate degree must be original and undertaken independently by each student, and must meet the following basic criteria:
- the work must demonstrate an ability to independently produce a thesis on an advanced research topic with comprehensively set out research questions;
- the work must demonstrate: a) proper use of sources, data and methodologies; b) an ability to process lines of enquiry and use critical thinking when using sources; c) mastery of the literature published on the topic.
A thesis that is merely descriptive and that simply puts forward ideas already published without originality would not satisfy the requirements of a graduate degree programme.

The final thesis bears a credit value of 16 ECTS. It is thus imperative that supervising faculty provide specific and rigorous criteria as set out here early on in the process and apply them right from the assessment of thesis topic applications.

Applications for graduate degree thesis approval must be submitted five months before the expected date of graduation if the candidate has accumulated at least 56 credits. Thesis topics must fall within a course in the student's graduate degree study plan.

Three types of thesis work

In practice, by following the above instructions, students can submit a thesis that will fall under one of the following categories:
- **"theoretical" thesis**: this demonstrates appropriate use of sources and methodological tools, whether from scientific literature or journals. The candidate uses suitable skill in selecting knowledge, in selectively choosing sources, in understanding and describing issues which are open and in critical thinking related to the state of knowledge on the subject;
- **"empirical" or "applied" thesis**: this is a collection of knowledge and empirical evidence that is put together and reworked, and then used in a suitable way for an independent, specific analysis of the field. In this kind of thesis, particular attention is paid first to how suitable and how methodologically rigorous the techniques for data collection and analysis are, and subsequently to the student's ability to develop independent interpretations related to the theoretical and practical issues emerging from the analysis.
- Finally, **a thesis may be partly the product of an internship or traineeship** (called "Curricular Internship for Thesis Work (Tirocinio Curriculare per Tesi)" which does not otherwise bear any credits, and that the student has selected as a means to collect data and information for the writing of the final project. For this type of thesis, the following conditions must be met:
a) the internship or traineeship must contain an activity with professionalising content;
b) there is a clear distinction between those activities that pertain to the internship and those that lead to the work for the thesis, since they both fulfill different purposes.

Calculation of final grade

Determination of the final grade for graduation is based on the grade point average of curricular exams taken throughout the programme (weighted against credits accumulated). Any adjustments or additional credits accumulated in addition to the 120 credits needed to graduate will be counted for the calculation of the grade point average. The grade of "30 with honours" is counted as 31.

The expected work-load and thesis assessment

The final thesis work carries 16 credits and will be scored on a scale of 0 to 8 points as follows:

- **0 – 2 points**: the thesis is limited to a description and summary of the subject that are already available, and does not add originality or the required personal interpretation and critique.
- **3 – 4 points**: the thesis shows only a partial achievement of the set objectives, and is predominantly focused on descriptive and representational aspects of the general topic.
- **5 – 6 points**: the thesis meets the set objectives and demonstrates effort made to incorporate interpretation, personal and original commentary.
- **7 – 8 points**: an excellent research thesis that meets all required aspects of a scientific work: clear and precise definition of the research question and relevant guiding hypothesis, pertinent use of literary sources and proper and original referencing, clear and explicit presentation – and subsequent use - of rigorous methods of analysis, and clear conclusion and structure of the results of the study that are successfully summarized in a final and independent, reasoned and original conclusion.

If a score of 7 – 8 points is recommended for an excellent piece of research, the supervising faculty will have to present to the Chair of the Graduation Committee a written, reasoned report in advance. And should the supervising faculty wish to recommended an honours recognition (cum laude) a final decision must be made unanimously by the entire Committee. An honours recognition may not be given solely on the basis of the academic activities undertaken and final average grade; it can only be given if the research thesis is assessed in the 7 – 8-point range.

Furthermore, should the final thesis present additional merit for the excellent quality of the work, it may be considered for **a final assessment of up to 10 points**. The same process would apply as previously noted. A 10-point assessment and an honours recognition (cum laude) are mutually exclusive and cannot be given together for the calculation of a final grade at graduate degree level.

The structure of the thesis, presentation and discussion

The content and structure of the thesis work must provide evidence for the supervising faculty to give a reasoned assessment of the work, and for the final exam panel to come to a judgement based on the criteria already set out above:

- the work must accurately set out one or more problems or research questions dealt with clearly and in an original way;
- the work must show evidence of independent and well thought-out commentary;
- the work must present results that are coherent with the thesis question(s) and must suitably highlight the student's original contribution to how the topic is dealt with;
- the work must be clear and up-to-date in regard to the methodologies used and the bibliographical sources and/or databases used in responding to the research questions and in formatting assessments: it must be emphasised that the bibliographical references listed in the thesis must be sources that have in fact been used and referenced by the student, who must also be able to discuss the content of such referenced material during the discussion.

Printing guidelines for thesis

The front page of the thesis must have the full name of the student, student identification number, name of degree programme, the thesis title, name of the supervising faculty member, with signature of both student and supervisor. The name of the secondary supervisor need not be printed.

The body of the thesis must be formatted as follows:

- Margins: top 3cm, bottom 3cm, left 3cm, right 3cm;
- Font: Arial 11;
- Line spacing: 1,5;
- Page format: standard A4

The printed thesis submitted to faculty for review must be bound. The standard length for a thesis is about 80 pages. For a thesis that is over 100 pages, it is preferred to have the thesis printed double sided.

Number of copies to prepare for submission:

- 1 bound copy for the Primary Supervisor
- 1 bound copy for the Secondary Supervisor
- 1 copy on optical media or microfiche (to be submitted to Student Services – Polo Studenti)

Graduating students must immediately inform their thesis supervising faculty and Student Services (Examinations) if for any reason they are not able to attend the final test/assessment session for which they applied, and in which case a new application for graduation must be submitted.

Guidelines for the approval of the final exam thesis topic

Approval of the final exam thesis topic is given by the selected supervising faculty member who teaches a courses that is part of the student's study plan. Application for approval must be submitted at least five months prior to the expected graduation session.

Approval of the thesis topic is subject to the submission of two copies of the dedicated form (one to be kept by the student as record and one for the supervising faculty member). Additionally, students need to complete the procedure for "submission of thesis title" either at a UC Point or through their iCatt account.

Important: *students are advised to safeguard their copy of their application form, as it will be part of the documents that will be submitted along with the application for graduation.*

Pre-requirements for final exam thesis topic approval

Students must have accumulated a minimum of 56 credits and reached a satisfactory level of competency for any knowledge or competency gap they may have had on their academic record (debito formativo).

Application for graduation

The application for graduation form, signed by the supervising faculty, must be submitted at least 45 days prior to the beginning of the selected graduation session. Both the application for graduation and the thesis topic approval forms must be turned in to Student Services together with a receipt for payment of administrative fees for the issue of the degree diploma, and if applicable for the additional fee due in the case of a final examination scheduled during an extraordinary session, which will have to be paid within a specific timeframe as indicated by Student Services.
Upon application for graduation, candidates will need to have no more than three outstanding exams (with the exception of those that apply to Theology courses).

Thesis submission

All candidates for graduation must submit the printed copies and the two microfiche copies of their thesis to Student Services. Upon submission Student Services will stamp, as confirmation of receipt, the 'Statement of Submission of Thesis to Supervising Faculty (Dichiarazione di avvenuta consegna della tesi al Relatore)' which was previously signed by both primary and secondary supervising faculty members. In addition, candidates will submit a completed form stating that they have no outstanding obligations to the Library or Educatt.

Important notes

1. No candidate will be admitted to a graduation session if the deadlines for the graduation application process are not met.
2. Any remaining exams must be passed and registered at least one week before the beginning of the graduation session.
3. Candidates obtain the status of "graduating student" upon submission of their application for graduation for a given final examination session, that is if they have satisfied all curricular requirements to be eligible for graduation. Students who are confident in their completion of their thesis by the last session available for their final programme year will not be required to re-enroll for the following academic year and will not be required to pay the first installment of tuition and university fees. They will however, should they graduate during the extraordinary examination session of February/March, pay the special administrative fee due for the scheduling of a final examination during an extraordinary session, that is sessions that pertain to exams associated to a programme year that are run the following academic year.
4. Information regarding fees associated to extraordinary examination sessions can be found in the "Regulations for tuition and university fees" at http://www.unicatt.it/tasse-e-contributi.

5. Graduating students must immediately inform their thesis supervising faculty and Student Services if for any reason they are not able to attend the final test/assessment session for which they applied, and in which case a new application for graduation must be submitted.