QUALITY ASSURANCE UNIT AUTh

School Medicine

Course Description Forms

Joint PPS "Managing Digital Transformation in the Health Sector" (2024-today)

(https://qa.auth.gr/el/studyguide/600000737/current)

27/08/2024

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Semester A

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	MH01	**SEMESTER**	1
TITLE	**Organisations and services in the health sector**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	General Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256593

(2) LEARNING OUTCOMES

Learning Outcomes

The students are able:• to describe national and international health and wellbeing policies and models in local contexts;• to critically analyse and apply knowledge about health and wellbeing regulations, agreements, funding instruments and bodies;• to recognize the needs for multi-professional and cross-cultural health care and social wellbeing service development.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies
Adapt to new situations
Make decisions
Work autonomously
Work in teams
Work in an international context
Work in an interdisciplinary team
Generate new research ideas
Design and manage projects
Appreciate diversity and multiculturality
Respect natural environment
Demonstrate social, professional and ethical commitment and sensitivity to gender issues
Be critical and self-critical
Advance free, creative and causative thinking
……
Other…
…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

The course starts with a pre-assignment in which students analyze and describe their home country's health and wellbeing systems. The joint sessions start with a flipped classroom approach, in which students will present their findings in class. During joint sessions, students will then discuss key differences and similiarities between countries. The course also includes lectures by external professionals within the health and wellbeing sector. During the course, students will do a project in groups. This group work project consists of an interview with a health and wellbeing sector professional, with the aim of mapping challenges and possibilities related to digitalization. he interviewee can a person be from the public, private, or third sector in health sector. In an individual assignment, students write an essay where they synthesize their learning. The essay includes an assessment of how different health and wellbeing systems can respond to different health objectives.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

International (e.g. UN) comparative material of health care systems and models in different countries. Organizational structure of health care systems. Objectives of health care systems. https://health.ec.europa.eu/state-health-eu/country-health-profiles_en International (e.g. UN) comparative material of health care systems and models in different countries. Organizational structure of health care systems. Objectives of health care systems. https://www.eu-healthcare.fi/know-your-rights/legislation Latest research articles published in this area.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	MS07	**SEMESTER**	1
TITLE	**Managing the digital transformation in healthcare**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	General Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256594

(2) LEARNING OUTCOMES

Learning Outcomes

• LO1: Explain and understand the concept of digital transformation and its significance in healthcare management.• LO2: Identify and evaluate key technologies driving digital transformation.• LO3: Analyze the impact of digital transformation on healthcare delivery, patient care, and organizational processes.• LO4: Apply principles of health informatics to support data-driven decision-making in healthcare organizations.• LO5: Assess the opportunities and challenges associated with electronic health records implementation.• LO6: Describe the role of telemedicine in improving access to healthcare services and patient outcomes.• LO7: Utilize data analytics for informed decision-making.• LO8: Discuss the ethical and privacy considerations related to the use of digital technologies in healthcare.• LO9: Develop strategies for effectively engaging patients in their healthcare through digital tools and platforms.• LO10: Design and propose a digital transformation plan for a healthcare organization.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*

Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Work autonomously, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

Course Topics:PC1: Introduction to Digital Transformation in Healthcare Management PC2: Health information systems and interoperability PC3: Telehealth technologies and applications PC4: Data-driven decision-making in healthcare PC5: Importance of patient engagement in healthcare PC6: Managing digital transformation projects PC7: Privacy and security of healthcare data PC8: Analysis of successful digital transformation initiatives in healthcare organizations PC9: Data analytics exercises using healthcare datasets PC10: Blockchain and its applications in healthcare PC11: Addressing interoperability challenges

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY
Face to face, Distance Learning

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students

Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment
Description:

COURSE ORGANIZATION
Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT
Description of the procedure

A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others

Description of the procedure:

Assessment methods:
Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). Health Care Information Systems: A Practical Approach for Health Care Management. Jossey-Bass.Topol, E. (2019). Deep

Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Basic Books.Kuziemsky, C. (Ed.). (2017). Health Informatics: An Interprofessional Approach (2nd ed.). Elsevier.Wickramasinghe, N., & Sharma, S. K. (Eds.). (2019). Healthcare Transformation: A Guide for the Hospital Board Member. CRC Press.Ongaro, E., & Ferrario, M. A. (2018). The Role of Digital Transformation in Health Care Service Delivery. In Digital Transformation in Healthcare (pp. 1-19). Springer.Klonoff, D. C. (Ed.). (2019). Digital Health Technologies: The Future of Health Care. Academic Press.Swab, J., Thielst, C. B., & Padilla, J. M. (2017). Digital Health Leadership: Developing Leaders Who Can Shape the Future of Healthcare. CRC Press.Jovanov, E. (Ed.). (2019). Connected Health: Improving Care, Safety, and Efficiency with Wearables and IoT Solution. Academic Press.Khalifa, M., & Alswailem, O. (2018). Artificial Intelligence (AI) Applications for Healthcare Management. In Handbook of Research on Advanced Data Mining Techniques and Applications for Business Intelligence (pp. 245-269). IGI Global.Anderson, J. G. (2017). Telehealth: A Longitudinal Multi-Method Evaluation of the US Experience. Journal of Telemedicine and Telecare, 23(1), 10-14.Shortliffe, E. H., & Cimino, J. J. (Eds.). (2018). Biomedical Informatics: Computer Applications in Health Care and Biomedicine (4th ed.). Springer.Davenport, T. H., & Thomas, R. J. (2018). Only Humans Need Apply: Winners and Losers in the Age of Smart Machines. HarperBusiness.Health Information and Management Systems Society (HIMSS). (2020). HIMSS Dictionary of Health Information and Technology Terms, Acronyms, and Organizations. HIMSS.Agarwal, R., & Shankar, R. (2019). Intelligent Data Analytics for Healthcare: Improving Outcomes and Reducing Costs. Springer.World Health Organization (WHO). (2018). Digital Health: A Call for Government Leadership and Cooperation between ICT and Health. WHO.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	MD10	**SEMESTER**	1
TITLE	**Health data and information systems**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	General Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256595

(2) LEARNING OUTCOMES

Learning Outcomes

LO1.Understand the principles of health data collection, management, and analysis.LO2. Analyze the role of health information systems in healthcare delivery.LO3. Learn about data standards, data sources, and data analytics tools used in healthcare.LO4. Develop an understanding of the ethical and legal considerations related to health data and information systems.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in

teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

CP1.Introduction to Health Information Systems and Data: Overview of health information management. Importance of health data for healthcare provision and decision-making. Introduction to health information systems and electronic health records (EHRs) CP2: Health data collection and standards. CP3. Data interoperability in healthcare. CP4. Health data management and analysis. CP5. Clinical decision support systems (CDSS) CP6. Implementation of Health Information Systems: Selection and acquisition of systems. System implementation methodologies. Change management and user adoption strategies. CP7. Future trends in health data and information systems: Big data and analytics in healthcare. Artificial intelligence and machine learning in health data analysis. Personalized medicine and precision computing in healthcare.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). Health care information systems: A practical approach for health care management (4th ed.).Jossey-Bass. Robson, W. (1996), Strategic Management and Information Systems: An Integrated Approach, (2nd ed), FT Management;Bourgeois, D. T. (2014), Information Systems for Business and Beyond, S.l.: Lulu.com Ammenwerth, E., de Keizer, N., & Brender, J. (2011). Introduction to health information systems. Springer.Wyatt, J. C. (2010). Health information systems: Challenges

of the new millennium. J of the American Medical Informatics Association, 17(3), 263-266. Fridsma, D. B., & Altman, R. B. (2013). A practical approach to big data in health care : Strategies for getting to know your data. Journal of the American Medical Informatics Association, 20(1), 111-116.Cusack, C. M., & Poon, E. G. (2010). Health information technology evaluation toolkit: 2008 update. Agency for Healthcare Research and Quality.Oluoch, T., Santas, X., & Gichoya, J. W. (2019). Health data governance: Privacy, data protection, and secondary use. Journal of Healthcare Informatics Research, 3(1), 36-49.Hersh, W. R., & Wright, A. (2019). What workforce is needed to implement the health information technology agenda? Analysis from the HIMSS Analytics Database. Journal of the American Medical Informatics Association, 26(2), 124-128.Kharrazi, H., Chisholm, R., VanNasdale, D., Thompson, B., & Lin, S. (2018). Health information exchange platforms: Evidence-informed strategies for sustainable adoption and use. Journal of Medical Internet Research, 20(10), e11066.Fricton, J. R., Chen, H., Wang, Q., & Qu, W. (2019). Electronic health records: Bridging the cultural divide in medicine. Journal of Evidence-Based Dental Practice, 19(2), 194-203.Lau, F., & Kuziemsky, C. (2014). Handbook of eHealth evaluation: An evidence-based approach. University of Victoria.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OH02	**SEMESTER**	1
TITLE	**Healthcare resource management**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specific Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256596

(2) LEARNING OUTCOMES

Learning Outcomes

Upon successful completion of the course, students will be able to:Understand the basic concepts and importance of resource allocation in healthcareIdentify and compare the different models used for resource allocation in healthcareUnderstand the ethical considerations and theories in resource allocationTo learn about emerging trends and innovations in healthcare resource allocationUnderstand the elements and importance of the supply chain in healthcareUnderstand the role of information technology in optimising supply chainsUnderstand the concept of quality in healthcare and its dimensionsApply essential quality improvement tools in healthcare scenarios

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	……

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work autonomously, Work in teams, Work in an international context, Work in an interdisciplinary team, Design and manage projects, Demonstrate social, professional and ethical commitment and sensitivity to gender issues, Advance free, creative and causative thinking

(3) COURSE CONTENT

This course provides an in-depth exploration of healthcare management, focusing on resource allocation, collaboration strategies, inventory management and quality improvement. Through a series of modules, students will develop the skills and knowledge needed to optimize healthcare delivery, integrate advanced technology, and implement effective leadership practices.Module 1: Resource allocation strategiesM1.1 Basic principles of resource allocationTopics: Introduction to resource allocation in healthcare, Economic principles in resource managementLearning Outcomes:Understand the basic concepts and importance of resource allocation in healthcare.Understand the economic principles underlying resource management decisions.Understanding of the principles of resource management and resource management principles: Short reflection paper.M1.2 Models and theories of resource allocationTopics: Overview of resource allocation models, Ethical theories and their application.Learning Outcomes:Identify and compare the different models used to allocate resources in healthcare.Understand ethical considerations and theories in resource allocation.Evaluations: Case study analysis, participation in online discussion.M1.3 Tools and techniques for resource optimisationTopics: Quantitative tools (e.g. linear programming, simulation), Qualitative decision-making approachesLearning outcomes:Learn to apply quantitative tools to optimize resource allocation.Appreciate the role of qualitative approaches in decision making.Assessments: Assessment: Assignment, peer assessment exercise.M1.4 Resource allocation in practiceThemes: Strategies to address challengesLearning Outcomes:Analysis of real case studies to understand practical challenges.Develop strategies to address common resource allocation challenges.Evaluations: Individual Essay.M1.5 Future trends and innovations in resource allocationTopics: Impact of technology and innovationLearning Outcomes:Explore emerging trends and innovations in healthcare resource allocation.Evaluate the impact of technological developments on resource allocation strategies.Assessments: Presentation, proposal of an innovative solutionModule 2: Collaborative strategies to optimise healthcareM2.1 Integrating mobile computing for resource managementTopics: Role of mobile computing, Applications in resource managementLearning outcomes:Understand the integration of mobile computing in healthcare.Analyze the benefits and challenges of mobile technology.Assessments: Assessment: Quiz, reflection assignment.M2.2 Strategic Management: Optimising procurement and business operationsTopics: Optimisation of business operationsLearning outcomes:Learn strategies for effective procurement in healthcare.Understand the principles for optimizing business operations.Evaluations: Case study analysis, Group work.M2.3 ICT for clinical resourcesTopics: ICT applications in clinical resource management, Improving healthcare deliveryLearning outcomes:Identify key ICT tools for clinical resource management.To assess the impact of ICT on healthcare delivery.Evaluations: Assessment: Assignment, peer review.M2.4 Strategic leadership: optimising resource managementThemes: Leadership strategies, Integrating technology and leadershipLearning Outcomes:Develop leadership skills for resource management.Understanding of the role of technology in strategic leadership.How to understand the role of technology in managing technology transfer: Individual Essay.Module 3: Inventory management and supply chain optimisationM3.1 Introduction to healthcare supply chain managementTopics: Challenges and opportunitiesLearning outcomes:Understand the components and importance of the healthcare supply chain.Identify challenges and opportunities in supply chain management.Assessment: Quiz, short essay.M3.2 Inventory management principlesTopics: Types of stock, basic management techniques (e.g. JIT, ABC analysis)Learning outcomes:Learn the types of stocks and their management needs.Understand basic inventory management techniques.Evaluations: Case study analysis, quizM3.3 Technology in supply chain and inventory managementSubjects: Various technologies (e.g. RFID, IoT).Learning Outcomes:Understand the role of information technology in optimising supply chains.Explore various technologies and their applications in healthcare.Evaluations: Group presentation, reflective journal.M3.4 Data analytics for supply chain optimisationTopics: Application to supply chain decisionsLearning outcomes: Learning outcomes:Understand the basic

principles of data analytics for supply chain decisions.Analyze data to improve inventory management and reduce waste.Assessments: Assessment: Practical work, peer reviewM3.5 Ethical and sustainable supply chain practicesSubjects: Strategies for sustainable managementLearning Outcomes:Recognise the importance of ethics and sustainability in supply chains.Develop strategies for sustainable inventory management and ethical sourcing.Assessments: Sustainability plan, online forum discussion.Module 4: Improving quality and patient safety in healthcareM4.1 Basic principles of quality in healthcareTopics: Historical perspectiveLearning outcomes:Understand the concept and dimensions of quality in healthcare.Recognise the development and importance of quality improvement efforts.Assessments: Assessment: Quiz, reflective essayM4.2 Measuring and monitoring qualityThemes: Techniques for measuring qualityLearning outcomes:Learn to select and use appropriate quality measurement indicators to assess quality.Develop skills to monitor and evaluate quality improvement initiatives.Evaluations: Individual analysis.M4.3 Basic principles of patient safety.Topics: Principles of patient safety, Common challenges and strategiesLearning outcomes:Understanding of the basic principles of patient safety.Identify common safety challenges and effective strategies.Assessments: Simulation exercise, reflective journalM4.4 Culture of quality and safety in healthcareTopics: Leadership and team dynamicsLearning outcomes:Identify the key elements of a positive quality and safety culture.Understand the role of leadership and teamwork in promoting this culture.Assessments: Team presentation, discussion on leadership styles

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	***Activities*** / ***Workload*** Lectures 39 Reading Assigment 21 Project 20 Written assigments 70 Total 150
STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* The course is organised around webinars. Students are actively encouraged to prepare on a weekly basis, participate, present papers and co-design the course. Attendance is compulsory and attendance and participation in the course, presentation of papers and the final project are taken into account for the final grade. *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Kaplan, R. S., & Porter, M. E. (2011). How to solve the cost crisis in health care. Harvard Business Review, 89(9), 46-52. https://doi.org/10.1111/j.1468-0009.2011.00634.xPorter, M. E., & Teisberg, E. O. (2006). Redefining health care: Creating value-based competition on results. Harvard Business Review Press. https://doi.org/10.1177/0149206310380242Fidler, D. P. (2004). SARS, governance and the

globalization of disease. Palgrave Macmillan. https://doi.org/10.1057/9781403981003Dobrzykowski, D. D., Deilami, V. S., Hong, P., & Kim, S. C. (2014). A structured analysis of operations and supply chain management research in healthcare (1982–2011). International Journal of Production Economics, 147, 514-530. https://doi.org/10.1016/j.ijpe.2013.04.055Ginter, P. M., Duncan, W. J., & Swayne, L. E. (2018). The strategic management of healthcare organizations. John Wiley & Sons. https://doi.org/10.1002/9781119331836Braithwaite, J., Wears, R. L., & Hollnagel, E. (2015). Resilient health care: Reconciling work-as-imagined and work-as-done. CRC Press. https://doi.org/10.1201/b18050Groop, J., Reijonsaari, K., Eriksson, J., & Katajisto, J. (2017). Lean thinking in healthcare: An evaluation of lean implementation in public healthcare. Leadership in Health Services, 30(4), 432-448. https://doi.org/10.1108/LHS-05-2016-0026Chen, Y., & Persson, J. A. (2012). Integrated healthcare supply networks: The next frontier. Journal of Operations Management, 30(7-8), 551-570. https://doi.org/10.1016/j.jom.2012.09.002Rachid, A. (2019). Quality improvement in healthcare: A continuous process. British Journal of Healthcare Management, 25(10), 290-294. https://doi.org/10.12968/bjhc.2019.25.10.290Berwick, D. M. (2008). The science of improvement. JAMA, 299(10), 1182-1184. https://doi.org/10.1001/jama.299.10.1182

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OH04	**SEMESTER**	1
TITLE	**Regulation, legislation and structures in health**		
Autonomous Didactic Activities		**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments			
		3	6.0000
TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specific Foundation		
PREREQUISITES:			
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)		
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:			
URL:	https://qa.auth.gr/class/1/600256597		

(2) LEARNING OUTCOMES

Learning Outcomes

LO1: - analyse the different models of wellbeing productionLO2: - analyse how well-being and its promotion and prevention are reflected in the values of EU and at the level of fundamental rights in the EU and its member states.LO3: - compare the differences in the national and Eu-level regarding the structures of EU policy making and regulations in order to understand EU- Health and Wellbeing digitalisation regulatory framework. LO4: investigate the EU- Health and Welbeing digitalisation regulatory framework´s from perspectives of the public and private health and wellbeing services providers, third sector and health technology companies in in order to get knowledge how to make change together in digital transformation. LO5: formulate and describe concrete steps to how to bring the digital health and wellbeing application in to use.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*

Generate new research ideas	*Other…* *…….*

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Appreciate diversity and multiculturality, Advance free, creative and causative thinking

(3) COURSE CONTENT

Programme Content (PC) PC1: Different models of wellbeing productions eg. Institutional, neoliberal, populist and residual welfare state regimes. PC2: Different visions of digital transformation in health and wellbeing. PC3: Different examples of the products implementation and roadmaps of digital service pathways. PC4: Well-being and its promotion and prevention as a concept. PC5: The values of Eu and at the level of fundamental rights in the EU and its member states. PC6: The national and Eu-level regarding the structures of Eu policy making and regulations. PC7: Regulatory frameworks for Eu- Health and Wellebing digitalisation. PC8: Eu- Health and Welfare digitalisation regulatory framework's. PC9: Perspectives of both the public and private health and wellbeing services providers, third sector and health technology companies in oder to get knowledge how to make change together in digital transformation. PC10: Concrete steps on how to bring the digital health and wellbeing application in to use considering existing regulation and institutional structures.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Yörük, E., Öker, I. & Tafoya, R.T. 2022. The four global worlds of welfare capitalism: Institutional, neoliberal, populist and residual welfare state regimes. Journal of European Social Policy 32(2), 119-134.https://european-union.europa.eu/priorities-and-actions/actions-topic/health_enEuropean Health Union (europa.eu) https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/promoting-our-european-way-life/european-health-union_enPublic health - EUR-Lex (europa.eu) https://eur-lex.europa.eu/summary/chapter/public_health.html?root_default=SUM_1_CODED=29https://health.ec.europa.eu/medical-devices-sector/new-regulations_enNational relevan legislation from Finland, France, Greek and Portugal Example: Legislation - EU-healthcare.fi (Finnish legislation in english) https://www.eu-healthcare.fi/know-your-rights/legislation/Värri, A. O. (2023). The impact of EU Digital Services Act and Digital Markets Act on health information systems . Finnish Journal of EHealth and EWelfare, 15(1), 67–76. https://doi.org/10.23996/fjhw.122310Latest reserch in this areaMinistry of Social affairs and Health https://stm.fi/en/wellbeing-services-countiesBertin G., Carrino L. & Pantalone M. (2021) Do standard classifications still represent European welfare typologies? Novel evidence from studies on health and social care. Social Science & Medicine,Volume 281,2021, 114086, ISSN 0277-9536,https://doi.org/10.1016/j.socscimed.2021.114086.Kawiorska D. (2016) Healthcare in the light of the concept of welfare state regimes - comparative analysis of EU member states. Oeconomia Copernicana. 2016;7(2):187-206. https://doi.org/10.12775/OeC.2016.012.Collington R. (2022) Disrupting the Welfare State? Digitalisation and the Retrenchment of Public Sector Capacity. New Political Economy, 27:2, 312-328, DOI: 10.1080/13563467.2021.1952559https://topl.hee.nhs.uk/The Lost and the New ‘Liberal World’ of Welfare Capitalism: A Critical Assessment of Gøsta Esping-Andersen's The Three Worlds of Welfare Capitalism a Quarter Century Later https://www.cambridge.org/core/journals/social-policy-and-society/article/lost-and-the-new-liberal-world-of-welfare-capitalism-a-critical-assessment-of-gosta-espingandersens-the-three-worlds-of-welfare-capitalism-a-quarter-century-later/4580DFDBE02493BA798D846B217143C5 Shapes 2022. Ecological Organisational Models of Health and Care Systems for Ageing https://shapes2020.eu/wp-content/uploads/2022/01/D3.1-SHAPES-Ecological-Organisation-Models-07-Dec-2020.pdf Shapes 2022. Scaling-up Improved Integrated Care Service. https://shapes2020.eu/wp-content/uploads/2022/01/D3.2_Scaling-up-Improved-Integrated-Care-Delivery-V1_v1.0.pdf

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OS05	**SEMESTER**	1
TITLE	**Technology and society**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specific Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256598

(2) LEARNING OUTCOMES

Learning Outcomes

Understand the principles of health and wellbeing, equal access to health, digital literacy and capabilities that digital healthcare could bring, global digital divides, institutional challenges of global, European, national and local levels in health service provision, health rights and power relations - with, for and by the people;Acquire general knowledge of philosophical, historical and recent transformations in the world of health, particularly in relation with the development of the digital society;Build a multidimensional understanding of the concepts of health (mental health, cultural lifestyles), society (health society, common people, care) and technology (common good);Apply critical and ethical thinking related to the development of health technologies;Identify and analyze complex and heterogenous data linking health differences, quality of life and social wellbeing, ownership and control of health data;Reconstruct the content of a resource and discuss it with the class

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*

Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Work autonomously, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

Introduction to Science and Technology Studies (STS)Presentation of the course and the assignmentIntroduction to key concepts of STS (symmetry, sociotechnical controversies, informational infrastructures, social construction of technology, infrastructures, materiality etc.)A new knowledge production in medicineUnderstanding the transformation of knowledge production in medicine from the 1970s-80s.Molecularization of life and biotech turn; rise and generalization of clinical trials; genomics.Medical expertiseExploring the medical expertise ecosystem and its recent transformation (rise of agencies; medical activism; co-production of knowledge).The worlds of e-healthUnderstanding the genesis, politics, development and effects on medical labour; focus on the development in the Global South.Big Data and MedicineUnderstanding what is a medical data and the issues associated;Politics of data; innovation; transformation of medical labour.Gender and MedecineUnderstanding gender inequalities in medicine; analyzing the role of science in gender assignment.Technoabilities: technology and disabilityUnderstanding the worlds of disability and related technological development.RestitutionPresentation of student projects and group discussion.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Al Dahdah M and Mishra RK (2023) Digital health for all: The turn to digitized healthcare in India. Social Science & Medicine 319. Health for all? Pasts, Presents and Futures of Universal Health Care and Universal Health Coverage: 114968. DOI: 10.1016/j.socscimed.2022.114968.Blume S, Galis V and Pineda AV (2014) Introduction: STS and Disability. Science, Technology, & Human Values 39(1). SAGE Publications Inc: 98–104. DOI: 10.1177/0162243913513643.Bowker GC and Star SL (2000) Sorting Things Out: Classification and Its Consequences. MIT Press.Epstein S (1996) Impure Science: AIDS, Activism, and the Politics of Knowledge. University of California Press.Griffiths DA (2018) Shifting syndromes: Sex chromosome variations and intersex classifications. Social Studies of Science 48(1): 125–148. DOI: 10.1177/0306312718757081.Jasanoff S (2011) Reframing Rights: Bioconstitutionalism in the Genetic Age. MIT Press.Latour B (1987) Science in Action: How to Follow Scientists and Engineers Through Society. Harvard University Press.Mathieu-Fritz A (2021) L'intelligence artificielle en médecine : des promesses aux usages… en passant par la conception. Sciences sociales et sante 39(2): 71–78.Mol A (2008) The Logic of Care: Health and the Problem of Patient Choice. Routledge.Murphy M (2006) Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers. Duke University Press.Rabinow P (2011) Making PCR: A Story of Biotechnology. University of Chicago Press.Sismondo S (2008) How pharmaceutical industry funding affects trial outcomes: Causal structures and responses. Social Science & Medicine 66(9): 1909–1914. DOI: 10.1016/j.socscimed.2008.01.010.Wajcman J (2006) New connections: social studies of science and technology and studies of work. Work, Employment and Society 20(4): 773–786. DOI: 10.1177/0950017006069814.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OS06	**SEMESTER**	1
TITLE	**Ethics and privacy in health**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specific Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256599

(2) LEARNING OUTCOMES

Learning Outcomes

LO1: Understand the philosophical and theoretical foundations of ethics in the health field. LO2: Acquire knowledge of specific ethical indicators and frameworks in the health field. LO3: Develop skills for analysing and resolving ethical dilemmas in the healthcare field. LO4: Understand the principles and ethical practices of scientific research involving human subjects in the health field. LO5: Understand and apply regulatory frameworks for privacy and data protection in the health field, particularly the GDPR. LO6: Analyse the ethical implications of emerging technologies and innovations in the healthcare field, such as artificial intelligence, data science, and robotics. LO7: Develop critical and ethical thinking skills to address ethical dilemmas and make informed decisions in complex situations in the healthcare field.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*

Generate new research ideas	*Other…* *…….*

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

PC1: Ethics in the health field–Ethics, conduct and integrity in the health field.–Ethical theories and moral decision-making: virtue ethics, utilitarian theories, deontological theories, the principles approach in the health field.–Ethical issues and dilemmas in the health field.–Codes of ethics, conduct and the responsibilities of healthcare professionals.PC2: Ethics and research in the health field–Research involving human subjects: the Belmont report; the WMA declaration of Helsinki; principles and practical orientations.–Clinical trials regulation in the European Union and Portugal.PC 3: Privacy and data protection in the health field–The GDPR: principles, definitions, lawfulness of processing, special categories of personal data, data subject rights.–Data processing for the purpose of health and safety and data processing in scientific research.–Anonymisation and pseudonymisation techniques. PC4: Ethical issues of digitalization, data science and AI in the health field.PC5: Digital health policies in Portugal and in the European Union.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	
STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

A Preliminary Opinion on data protection and scientific research, The European Data Protection Supervisor, 2020. https://edps.europa.eu/sites/default/files/publication/20-01-06_opinion_research_en.pdf.Principles of Biomedical Ethics (7th edition); Tom L. Beauchamp e James F. Childress; Oxford University Press, 2013.Proposal for a Regulation of the European Parliament and of The Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence act) and Amending Certain Union Legislative Acts, 2021, https://eur-lex.europa.eu/legal-content/PT/TXT/?uri=CELEX%3A52021PC0206.The EDPB-EDPS Joint Opinion 03/2022 on the Proposal for a Regulation on the European Health Data Space, 2022.The handbook on European Data Protection Law, edited by The Council of Europe (CoE) and the European Court of Human Rights (ECtHR), 2018.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OS08	**SEMESTER**	1
TITLE	**Management, innovation and entrepreneurship in healthcare**		
Autonomous Didactic Activities		**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments			
		3	6.0000
TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specific Foundation		
PREREQUISITES:			
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)		
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:			
URL:	https://qa.auth.gr/class/1/600256600		

(2) LEARNING OUTCOMES

Learning Outcomes
By the end of the course students will be able to: -understand the basic principles and parameters for business planning in healthcare; -define and identify innovation; -perform/conduct small scale research re professional development opportunities for MDs; -use tools for business planning; -appreciate the role and importance of the entrepreneurship lab -adopt best practices in advancing entrepreneurship -collaborate with other disciplines -evaluate different business initiatives -compare good and bad practices of different enterprises -prepare modern presentations on business planning.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

Introduction:Course overview, objectives, and expectations.Importance of managerial and entrepreneurship skills in healthcare.Innovation Theory and Practice:Theoretical foundations of innovation in healthcare.Strategies for fostering and managing innovation in healthcare organizations.Business Setting and Digital Enterprise Marketing and Management:Digital marketing and effective management techniques for healthcare enterprises.Pitching:Developing presentation skills for effective pitching.Social Innovation:Exploring social innovation initiatives in healthcare.Social Enterprises:Analyzing successful social enterprise models in healthcare.Cases and Exercises:Analyzing real-world cases and exercises in healthcare management.Labs on Business Planning:Practical workshops for developing comprehensive business plans.Application of business planning methodologies and tools in healthcare.Presentation of the Business Plan:Presenting and defending developed business plans.Feedback and improvement opportunities.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY
Face to face, Distance Learning

Distance learning

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students

Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment
Description:

COURSE ORGANIZATION
Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT
Description of the procedure

A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others

Description of the procedure:

Assessment methods:
Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Karagiannis, H.G. – Bakouros, I.L. (2010) ""Innovation and Entrepreneurship: Theory - Practice"" Sophia Publications.David Dawkins and Mark Freel (2007) ""Entrepreneurship"" Kritiki Publications.Piperopoulos, G.P. (2008) ""Entrepreneurship, Innovation & Business Clusters"", 2nd Edition, Thessaloniki: Sakkoulas Publications.Chatzikonstantinou, G., Goniadis, I. (2009) ""Entrepreneurship and Innovation"", Gutenberg Publications. Supplementary electronic notes are also distributed for free on elearning.auth.gr."

Semester B

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	MH03	**SEMESTER**	2
TITLE	**Social and individual approach in health**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	General Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256601

(2) LEARNING OUTCOMES

Learning Outcomes

After completing the curricular unity the student is able to (LO = learning outcomes)• LO1 identify possibilities and limitations of digitality in individual health decisions• LO2 understand the relevance of regulation and other public policy tools in health promotion• LO3 assess individual behaviour and evaluate the prerequisites for behavioral change• LO4 argue the relevance of behavioral insights in developing digital solutions • LO5 design interventions that promote behavioural change • LO6 estimate the impact of behavioural change interventions at the levels of health and financial benefits

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team

(3) COURSE CONTENT

S1 Social and individual approach to the digital transformation in the health sector S1.1 Role and limitations of digitality in individual health S1.2 Regulation and other public policy tools related to public health S2 Applying behavioral insights in health care and health promotion contexts S2.1 Development and evaluation of digital solutions and real life behavioral interventions S2.2 The cognitive biases and heuristics in understanding patients and service providers behaviour S3 Behavioral change principles and interventions as means to improve health outcomes S3.1 Governmental interventions and policies in promoting public healthS3.2 Health care professionals role in assisting patients in forming healthy habitsS4 Impact assessment of behavioral interventions S4.1 Evaluation of the behavioral change and the related health benefits S4.2 Financial impact and cost effectiveness of the interventions

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

* Benartzi, S., Beshears, J., Milkman, K. L., Sunstein, C. R., Thaler, R. H., Shankar, M., Tucker-Ray, W., Congdon, W. J., & Galing, S. (2017). Should Governments Invest More in Nudging? Psychological Science, 28(8), 1041–1055. * Faries MD. Why We Don't ""Just Do It"": Understanding the Intention-Behavior Gap in Lifestyle Medicine. Am J Lifestyle Med.

2016 Jun 22;10(5):322-329. doi: 10.1177/1559827616638017. PMID: 30202289; PMCID: PMC6125069.* Hankonen, N.E., & Hardeman W. 2020. Developing Behavior Change Interventions, in M.S. Hagger , L.D. Cameron , K. Hamilton , N. Hankonen & T. Lintunen (eds) The handbook of behavior change, Cambridge Handbooks in Psychology , Cambridge University Press, 300-317. * Johnson, E. (2021). The Elements of Choice: Why the Way We Decide Matters.* OECD (2019), Tools and Ethics for Applied Behavioural Insights: The BASIC Toolkit, OECD Publishing, Paris.* Ralph L. Keeney. “Personal Decisions Are the Leading Cause of Death. OPERATIONS RESEARCH Vol. 56, No. 6, November–December 2008, pp. 1335–1347* Thaler, R. & Sunstein, C. (2021). Nudge - The Final Edition.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	MS09	**SEMESTER**	2
TITLE	**Service design**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	General Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256602

(2) LEARNING OUTCOMES

Learning Outcomes

Knowledge: Understand the concepts and principles of systemic service design. Acquire a comprehensive understanding of applicability of service design in healthcare through online studies, interactive lectures, case studies, group discussions, and hands-on experiments.Skills: Acquire skills to apply service design in practice to enhance the systemic development of the social welfare and healthcare service ecosystems.Competencies: Acquire general knowledge of human-centred and systemic service design in the social welfare and healthcare service ecosystems.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies
Adapt to new situations
Make decisions
Work autonomously
Work in teams
Work in an international context
Work in an interdisciplinary team
Generate new research ideas
Design and manage projects
Appreciate diversity and multiculturality
Respect natural environment
Demonstrate social, professional and ethical commitment and sensitivity to gender issues
Be critical and self-critical
Advance free, creative and causative thinking
……
Other…
…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

Pre-assignment (reading, writing key insights on discussion forum)Online kick-off (online 2 hours)Desk Research and stakeholder interviews (remote work between the kick-off and 5-daysprint, individual and team work)5-Day Co-creation Sprint Week held annually in ManagiDiTH partners' countries aboutonce a year1. Problem definition2. Ideation and sketching3. Deciding and iterating4. Prototyping and piloting5. Showcasing resultsEnd Gala PresentationsNote: Students who are unable to participate to the 5-day sprint on-site form their ownteam and do their assignments online and/or in their local community. The supportiveactivities and coaching that is part of the 5-day sprint are organised as asynchronic andsynchronic online activities.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	
STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Oral Exams (Formative,Summative), Report (Formative,Summative)

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Design Council (2021). ""Beyond Net Zero. A Systemic Design Approach.Foglieni F., Villari B., Maffei S. (2018). From Service to Service Design. In Designing Better Services. SpringerBriefs in Applied Sciences and Technology. Springer, Cham.;Junginger, S. (2017) Transforming Public Services by Design Re-Orienting Policies, Organizations and Servicesaround People. Oxfordshire, UK; Routledge.Pfannstiel, M. A. 2023. Human-centered

service design for healthcare transformation: Development, innovation,change. Singapore: Springer International Publishing AG.Pfannstiel, M. A., Brehmer, N. & Rasche, C. 2022. Service design practices for healthcare innovation:Paradigms, principles, prospects. Cham: Springer Nature Switzerland.Pfannstiel. 2019. Service Design and Service Thinking in Healthcare and Hospital Management. SpringerInternational Publishing.Media Inc.Kouprie, M & Sleeswijk Visser, F. (2009) A framework for empathy in design: stepping into and out of the user's life (Links to an external site.) in Journal of Engineering Design Vol. 20, No. 5, October 2009, 437–448;Sangiorgi, D., et al. (2022). ""Designing as Negotiating Across Logic Multiplicity: The Case of Mental HealthcareTransformation Toward Co-design and Co-production."" International Journal of Design 16(1): 35-54.;Penin, L. (2018). An introduction to service design : Designing the invisible. ProQuest Ebook Centralhttps://ebookcentral.proquest.comLinks to an external site.Raun, L. (2017). Designing for service change: A study on how designers address implementation duringservice design projects for hospitals. Aalborg Universitetsforlag. Ph.d.-serien for Det Tekniske Fakultet for IT og Design, Aalborg Universitet.Jones, P. & Van Ael, K. 2022. Design journeys through complex systems: Practice tools for systemic design.Amsterdam: BIS Publishers.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	MD17	**SEMESTER**	2
TITLE	**Health data classifications and exchange formats**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	General Foundation
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256803

(2) LEARNING OUTCOMES

Learning Outcomes

Analyzing the underlying needs of a healthcare technology problem and suggesting standards to address gaps and provide solutions in healthcare technology applications. Explaining the difference between standards, guidelines, and protocols. Exploring ways to develop or utilize technological systems and/or methodologies to apply standards. Understanding the concepts of data classification and its significance in healthcare. Evaluating different data classifications, terminologies, and standards. Proficiency in using widely adopted health data classifications. Explaining the principles of standardized data exchange formats. Identifying the challenges and opportunities associated with interoperability, reuse, and exchange of health data. Analyzing real-world scenarios to determine data classifications and exchange formats. Applying best practices in data classification and exchange to enhance data management and analysis, as well as business development.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*

Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

1: Introduction to digital health trends and standardization: Data coding, definitions, and classifications. Terminologies and vocabularies.2: Common data classifications: International Classification of Diseases (ICD).Systematized Nomenclature of Medicine (SNOMED CT). Logical Observation Identifiers Names and Codes (LOINC). International Classification of Health Interventions (ICHI). International Classification of Functioning, Disability, and Health (ICF). Anatomical Therapeutic Chemical Classification System (ATC) and Defined Daily Dose (DDD).3: Data exchange formats: Health Level Seven (HL7). Fast Healthcare Interoperability Resources (FHIR). Clinical Document Architecture (CDA).4: Data standards and reuse: Data interoperability challenges. Primary and secondary uses of data. Factors, constraints, and challenges.5: Case studies and applications.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Kinnunen, U et al. (2021-08-30) User GuideThe Finnish Care Classification System FinCC 4.0_v1.1.Mykkänen, M. et al. Using standardized nursing data for knowledge generation - Ward level analysis of point ofcare nursing documentation. Int J Med Inform 2022 Nov;167:104879.Törnvall E, Jansson I. Preliminary evidence for the usefulness of standardized nursing terminologies in differentfields of application: A Literature Review. Int J Nurs Knowl. 2017 Apr;28(2):109-119.WHO 2022. Sharing and reuse of health-related data for research purposes: WHO policy and implementationguidance.C. Safran 2017. Update on Data Reuse in Health Care. Yearb Med Inform. 2017 Aug; 26(1): 24–27.Publishedonline 2017 Sep 11. doi: 10.15265/IY-2017-013 PMCID: PMC6239227PMID: 29063535Holub et al. 2018. Enhancing Reuse of Data and Biological Material in Medical Research:From FAIR to FAIR-Health BIOPRESERVATION AND BIOBANKING. Volume 16, Number 2, 2018. Mary Ann Liebert, Inc.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OD11	**SEMESTER**	2
TITLE	**Data analytics and machine learning**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specialization / Direction
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256607

(2) LEARNING OUTCOMES

Learning Outcomes

After this course, students will be able to: Apply and understand various stages within the realm of machine learning. Recognize and locate crucial data points. Employ imputation techniques for data replacement and establish appropriate metrics. Identify and employ supervised and unsupervised algorithms suitable for health data analysis. Evaluate and interpret the performance of the various machine-learning algorithms on health data. Implement a machine learning pipeline in an ML toolkit.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

Foundations of AI in HealthSetting up the working EnvironmentData Pre-processingMachine Learning AlgorithmsApplications

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	
STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Course Description Form

(1) GENERAL

FACULTY	Health Sciences			
SCHOOL	Medicine			
CYCLE / LEVEL	Postgraduate			
CODE	OD12	**SEMESTER**	2	
TITLE	**Deep learning and computer vision in health**			
Autonomous Didactic Activities			**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments				
			3	6.0000
TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specialization / Direction			
PREREQUISITES:				
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)			
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:				
URL:	https://qa.auth.gr/class/1/600256608			

(2) LEARNING OUTCOMES

Learning Outcomes
LO1: To represent an image in different color spaces and in the frequency domain LO2: To perform typical image processing operations LO3: To extract low-level characteristics from an image LO5: To implement an automatic learning system based on classic algorithms for image content classification LO5: To know the typical architecture of a convolutional neural network (CNN) and to understand how it works LO6: To solve a medium complexity image classification problem using CNNs LO7: To apply transfer learning / fine-tuning methodologies based on pre-trained CNNs LO8: To use deep learning algorithms for image objects identification LO9: To know deep learning algorithms for automatic generation of multimedia content LO10: To manipulate images using the OpenCV library and use the Tensorflow library to develop automatic learning applicationsLO11: Healthcare applications
General Competences *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* *Retrieve, analyse and synthesise data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Design and manage projects* *Appreciate diversity and multiculturality* *Respect natural environment* *Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical* *Advance free, creative and causative thinking*

Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

PC1 Image representation PC2 Image operationsPC3 Extraction of image featuresPC4 Introduction to machine learning PC5 Artificial neural networks PC6 Convolutional neural networks PC7 Transfer Learning PC8 Network architectures for detecting and identifying image objects PC9 Network architectures for automatic content generationPC10 Developed Health Care Applications

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Feature Extraction and Image Processing for Computer Vision, 4th Edition, M. Nixon e Alberto Aguado, Academic Press, 2019 Deep Learning, I. Goodsfellow, Y. Bengio e A. Courville, MIT Press, 2016 Learning OpenCV 4 with Python 3, 3rd Edition, Joseph Howse, Joe Minichino, Packt Publishing, 2020 Tutoriais e documentação das bibliotecas OpenCV e Tensorflow

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OD13	**SEMESTER**	2
TITLE	**Technologies in interoperable ecosystems in health**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specialization / Direction
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256604

(2) LEARNING OUTCOMES

Learning Outcomes
LO1: Demonstrate a comprehensive understanding of the principles and concepts of interoperability in healthcare, including the different standards and protocols used to enable data exchange between different systems and devices.LO2: Identify the key components and standards of interoperable health systems.LO3: Explore technologies used to achieve interoperability in healthcare, such as HL7, FHIR, DICOM, and APIs.LO4: Compare and analyze the application of available technologies in different healthcare settingsLO5: Understand how to design, develop, and implement interoperable healthcare systems, including system architecture, data exchange protocols, and security and privacy features.LO6: Explore the mechanism to assess Interoperable Ecosystems, understand the basics of the testing continuum in healthcareLO7: Learn how to apply their knowledge and skills to different scenarios related to healthcare interoperability, including case studiesLO8: Understand how to identify and address the challenges and the regulatory requirements for healthcare interoperability.LO9: Understand the importance of data security and privacy in interoperable health systems.LO10: Engage in lifelong learning and professional development to remain a competent and effective contributor to interoperable healthcare ecosystems.LO11: understand the concepts of an interoperability framework and its governanceLO12: understand the necessity of interoperabiliy specifications and the use case methodology in interoperability
General Competences *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma*

Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

The module aims to explain the concept of interoperability in healthcare systems, emphasising its importance in improving patient care and the flow of health information. To ensure secure and accurate data exchange, it will cover implementing standards and protocols such as HL7, FHIR, and DICOM. The module will also explore emerging technologies revolutionising healthcare data interoperability. Students will learn about the principles of data interoperability, current challenges to achieving interoperability, and emerging technologies such as blockchain, artificial intelligence, and the Internet of Things in enhancing data exchange and sharing in healthcare.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OD14	**SEMESTER**	2
TITLE	**E-health and telemedicine**		
Autonomous Didactic Activities		**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments			
		3	6.0000
TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specialization / Direction		
PREREQUISITES:			
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)		
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:			
URL:	https://qa.auth.gr/class/1/600256605		

(2) LEARNING OUTCOMES

Learning Outcomes
Knowledge: Develop a comprehensive understanding of the principles and applications of e-health and telemedicine in the healthcare industry. This includes knowledge of the various technologies and systems used in remote healthcare delivery.Skills: Acquire practical skills in utilizing digital technologies and telecommunication systems for effective remote healthcare services. Students will learn how to apply these technologies to facilitate virtual consultations, remote monitoring, and other telehealth interactions.Competencies: Develop the ability to analyze and address the challenges and ethical considerations associated with e-health and telemedicine. Students will gain the skills to critically evaluate privacy and security issues, as well as ethical dilemmas that arise in the use of digital technologies for healthcare.By achieving these learning outcomes, students will be equipped with the knowledge, skills, and competencies needed to navigate the evolving field of e-health and telemedicine. They will be prepared to contribute to the advancement of remote healthcare delivery and address the ethical and practical challenges that arise in this context.
General Competences *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* *Retrieve, analyse and synthesise data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Design and manage projects* *Appreciate diversity and multiculturality* *Respect natural environment* *Demonstrate social, professional and ethical commitment and sensitivity to*

Work autonomously	*gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

Introduction to E-Health and Telemedicine: Provides an overview of e-health and telemedicine, exploring their benefits and challenges in the healthcare industry.Telecommunication Systems in Healthcare: Examines the use of telecommunication systems for remote healthcare delivery, including teleconsultation, telemonitoring, and teleconferencing.Digital Health Technologies: Explores various digital health technologies, such as electronic health records, mobile health applications, and wearable devices, and their role in improving healthcare delivery.Legal and Ethical Considerations in E-Health and Telemedicine: Discusses the legal and ethical implications of e-health and telemedicine, focusing on privacy, security, and regulatory frameworks that govern the use of digital technologies in healthcare.Implementing E-Health and Telemedicine: Covers the infrastructure requirements and considerations for implementing e-health and telemedicine systems, including interoperability between different healthcare systems.Case Studies and Real-World Examples in E-Health and Telemedicine: Analyzes real-world case studies and examples to provide practical insights into the application and impact of e-health and telemedicine in healthcare settings.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	

Activities	*Workload*
Lectures	39
Reading Assigment	21
Project	20
Written assigments	70
Total	150

STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Grigsby, J., Rigby, M., Hiemstra, A., & House, M. (2015). Telemedicine readiness for hospice care center patients. Telemedicine Journal and e-Health, 21(8), 647-651.Topol, E. J. (2012). The creative destruction of medicine: How the digital revolution will create better health care. Basic Books.Mooney, S. E., & DeBate, R. D. (2013). Telemedicine and e-Health: A reader for Health Professionals. Routledge.Bashshur, R. L., Shannon, G. W., Bashshur, N., & Yellowlees, P. M. (2015). The empirical evidence for telemedicine interventions in mental disorders. Telemedicine Journal and e-Health, 21(12), 942-948.Oh, H., Rizo, C., Enkin, M., & Jadad, A. (2010). What is eHealth (3): A systematic review of published definitions. Journal of Medical Internet Research, 12(1), e1.World Health Organization. (2010). Telemedicine: Opportunities and developments in Member States: Report on the second global survey on eHealth. World Health Organization.Mair, F. S., May, C., & O'Donnell, C. (2012). Developing telehealthcare in rural Scotland: A qualitative study of patients' views. Journal of Telemedicine and Telecare, 18(6), 357-361.Sood, S., Mbarika, V., Jugoo, S., Dookhy, R., Doarn, C. R., & Prakash, N. (2010). What is telemedicine? A collection of 104 peer-reviewed perspectives and theoretical underpinnings. Telemedicine and e-Health, 16(9), 977-983.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OD15	**SEMESTER**	2
TITLE	**Cybersecurity for Health Systems**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specialization / Direction
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256606

(2) LEARNING OUTCOMES

Learning Outcomes

At the end of the learning unit, the student must be able to:LO1: Understand the unique cybersecurity challenges in healthcare and the importance of protecting sensitive patient data.LO2: Develop the knowledge and skills to assess and manage cybersecurity risks in health systems.LO3: Implement security measures to safeguard network infrastructure, applications, and medical devices.LO4: Ensure compliance with data privacy regulations and employ techniques to protect patient confidentiality.LO5: Establish effective incident response and disaster recovery plans to mitigate and recover from cybersecurity incidents.LO6: Stay updated on emerging trends and technologies in healthcare cybersecurity, while considering ethical considerations and industry best practices.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*

.....

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

S01. Introduction to Cybersecurity in HealthcareS02. Security Fundamentals for Health SystemsS03. Risk Assessment and Management in Health SystemsS04. Network Security in Health SystemsS05. Application Security in Health SystemsS06. Data Privacy and Confidentiality in Health SystemsS07. Incident Response and Disaster Recovery in Health SystemsS08. Threat Detection and Prevention in Health SystemsS09. Secure Cloud Computing in Health SystemsS10. Medical Device SecurityS11. Security Governance and Compliance in Health SystemsS12. Emerging Trends and Future Directions in Healthcare Cybersecurity

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	**Activities** / **Workload** Lectures 39 Reading Assigment 21 Project 20 Written assigments 70 Total 150
STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

Ayala, L. (2016). Cybersecurity for Hospitals and Healthcare Facilities: A Guide to Detection and Prevention. Apress.Hernandez, S. (Ed.). (2014). Official (ISC)2 Guide to the HCISPP CBK (1st edition). Auerbach Publications.Herzig, T. W. (2010). Information Security in Healthcare: Managing Risk (1st edition). HIMSS Publishing.Herzig, T., & Walsh, T. (2013). Implementing Information Security in Healthcare: Building a Security

Program (1st edition). HIMSS Publishing.Johnson, C. B. (2023). HIPAA Privacy & Security Compliance for Healthcare Administrators. Independently published.Koontz, L. (2021). Information Privacy in the Evolving Healthcare Environment (2nd edition). CRC Press.MBA, T. W. Y. T. Y. C. C. M. S., & MacAlister, D. (2015). Hospital and Healthcare Security (6th edition). Butterworth-Heinemann.Ogu, E. C. (2021). Cybersecurity for eHealth: A Simplified Guide to Practical Cybersecurity for Non-Technical Healthcare Stakeholders & Practitioners (1st edition). Routledge.Robichau, B. P. (2014). Healthcare Information Privacy and Security: Regulatory Compliance and Data Security in the Age of Electronic Health Records (1st ed. edition). Apress.Tan, J. (2019). Adaptive Health Management Information Systems: Concepts, Cases, and Practical Applications: Concepts, Cases, and Practical Applications (4th edition). Jones & Bartlett Learning.Murphy, S. P. P. (2015). Healthcare Information Security and Privacy (1st edition). McGraw Hill.

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	OD16	**SEMESTER**	2
TITLE	**Sensors for medical instrumentation and signal processing**		

Autonomous Didactic Activities	**HOURS OF INSTRUCTION**	**ECTS**
Lectures Reading Assigment Project Written assigments		
	3	6.0000

TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Specialization / Direction
PREREQUISITES:	
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:	
URL:	https://qa.auth.gr/class/1/600256609

(2) LEARNING OUTCOMES

Learning Outcomes

General Information on sensors and InstrumentationGeneral knowledges concerning sensor classification, principles and application, Sensors conditionning and Instrumentation amplifierSleep pathologiesUnderstanding sleep disorders, biomedical sensors to perform a sleep examInstrumentation for Electrophysiological measurements General knowledge on neurons and electrophysiology, Instrumentation associated, Basic Signal treatment for ECG/EMG/EEG.Miniaturization and integration Knowledge in sensors miniaturization, Microfluidics and Lab-On-a-Chip: context and marketMonitoring electrical properties of living one Understanding Bioimpedance, Use of Bioimpedance to monitore physiological stateSynthesis and Oral DefenseAnalysis of a topics relative to sensors for medical instrumentation: bibliography analysis for a short synthesis (report writting) and oral defense (short video recording).

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*

Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

General Information on sensors and Instrumentation (8 hours)Sleep pathologies (8 hours)Instrumentation for Electrophysiological measurements (8 hours)Miniaturization and integration (8 hours)Monitoring electrical properties of living one (8 hours)Synthesis and Oral Defense (10 hours)

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	***Activities*** / ***Workload*** Lectures 39 Reading Assigment 21 Project 20 Written assigments 70 Total 150
STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

[1] Biomedical Sensors and Instruments, CRC Press, Second Edition by Tatsuo Tagawa, Toshiyo Tamura, P. Ake Oberg[2] Enginnering of Micro/Nano Biosystems Fundamentals and Applications, Springer by Gregory Barbillon, Alain Bosseboeuf, Kukjin Chun, Rosaria Ferrigno, Olivier Français.[3] An introduction to signal processing for non-engineers, CRC Press, 1st Edition by Afshin Samani.

Semester Γ

Course Description Form

(1) GENERAL

FACULTY	Health Sciences		
SCHOOL	Medicine		
CYCLE / LEVEL	Postgraduate		
CODE	MT18	**SEMESTER**	3
TITLE	**Master's thesis**		
Autonomous Didactic Activities		**HOURS OF INSTRUCTION**	**ECTS**
Written assigments			
			30.0000
TYPE OF THE COURSE *backround, general knowledge, scientific area, skills development*	Skills Development		
PREREQUISITES:			
LANGUAGE OFINSTRUCTION AND EXAMINATION:	English (Instruction,Examination)		
THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:			
URL:	https://qa.auth.gr/class/1/600256800		

(2) LEARNING OUTCOMES

Learning Outcomes

Acquire the capacity to undertake research independently. Know how to develop a review based on relevant literature in a given-scientific field.Select one or more methodological approaches to achieve the project.Know how to validate the artifacts that constitute the solution to the chosen problem and identify the corresponding validity threats.Have learned about the complexity and how to prepare a successful master dissertation with high quality, both in form and content.To be able to present a technical-scientific problem and its motivation, to produce appropriate and validated solutions.

General Competences

Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?

Retrieve, analyse and synthesise data and information, with the use of necessary technologies	*Design and manage projects*
Adapt to new situations	*Appreciate diversity and multiculturality*
Make decisions	*Respect natural environment*
Work autonomously	*Demonstrate social, professional and ethical commitment and sensitivity to gender issues*
Work in teams	*Be critical and self-critical*
Work in an international context	*Advance free, creative and causative thinking*
Work in an interdisciplinary team	*……*
Generate new research ideas	*Other…*
	…….

Apply knowledge in practice, Retrieve, analyse and synthesise data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work in

teams, Work in an international context, Work in an interdisciplinary team, Respect natural environment, Advance free, creative and causative thinking

(3) COURSE CONTENT

The work program starts from a topic raised by the student's intellectual interest, a topic that will be addressed according to a customized program of work to be agreed with the supervisor. Notwithstanding this, the work to be done must materialize in a ""paper"" containing:1.The formulation of a question or a problem, theoretically capable of having an appropriate response through the mobilization of scientific research methodology.2.A review of the theoretical issues underlying the question above, obtained through research, analysis and critical interpretation of the latest internationally accepted scientific literature.3.In coordination with the earlier theoretical balance, the dissertation must contain an exercise (theoretical and / or empirical) that complements an innovative way to approach the topic under investigation.4.Finally, the dissertation must contain a conclusive synthesis answering the research starting point, as well as suggestions for further research.

(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance Learning*	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students*	Use of ICT in Course Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment *Description:*
COURSE ORGANIZATION *Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assigment, Tutorial, Internship, Clinical Practice, Artistic Workshop, nteractive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.*	**Activities** / **Workload** Written assigments — 750 Total — 750
STUDENT ASSESSMENT *Description of the procedure* *A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions, Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Labortatory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others*	*Description of the procedure:* *Assessment methods:* Written Assignment (Formative,Summative), Report (Formative,Summative)

(5) BIBLIOGRAPHY

- Course bibliography:

- Additional bibliography for study:

The bibliography adopted results from the survey conducted by the students themselves, taking into account the "Question of Departure" that guides the work of each student.Special attention should be given to bibliographical information provided by the Advisor.Evans, D., Gruba, P., & Zobel, J. (2014). How to write a better thesis. Melbourne

Univ. Publishing.Smith, I., & Felix, M. S. (2019). A practical guide to dissertation and thesis writing. Cambridge Scholars Publishing.