
**HELLENIC REPUBLIC**

**UNIVERSITY OF THESSALY**

**SCHOOL OF ECONOMICS AND MANAGEMENT SCIENCES**

**DEPARTMENT OF BUSINESS ADMINISTRATION**


**MSc in Government Digital Innovation and Transformation**

# COURSE OUTLINES

## " MSc in Government Digital Innovation and Transformation"

**FEBRUARY 2025**

**ΠΕΡΙΕΧΟΜΕΝΑ**

## Curriculum

**First Semester**

| | CODE | TYPE (Core/ Optional | COURSES | ECTS |
|---|---|---|---|---|
| **1** | M01 | C | Government in the Digital Age | 7,5 |
| **2** | M02 | C | Information systems in Government | 7,5 |
| **3** | M03 | C | Data-centric Governance | 7,5 |
| **4** | M04 | C | Public sector innovation and Strategy | 7,5 |
| | | | **Total ECTS** | 30 |

**Second Semester**

| | CODE | TYPE (Core/ Optional | COURSES | ECTS |
|---|---|---|---|---|
| **7** | M07 | C | Data Analytics | 7,5 |
| **8** | M08 | C | Sustainable Management of Projects in Government | 7,5 |
| **9** | M09 | C | Citizen engagement and New Media | 7,5 |
| **10** | M10 | C | Research Methods and Skills | 7,5 |
| | | | **Total ECTS** | 30 |

**Third Semester**

| | CODE | TYPE (Core/ Optional | COURSES | ECTS |
|---|---|---|---|---|
| **11** | M11 | C | Thesis | 30 |

## GOVERNMENT IN THE DIGITAL AGE

### (1) General Information

| | | | |
|---|---|---|---|
| **Faculty** | Economic and Management Sciences | | |
| **Department** | Business Administration | | |
| **Level** | Postgraduate | | |
| **Code** | M01 | Semester | *1st* |
| **Module Title** | Government in the Digital Age | | |

| **Independent Teaching Activities** | **Hours/week** | **ECTS** |
|---|---|---|
| | 4 | 7.5 |

| | |
|---|---|
| **Module Type:** | Compulsory |
| **Teaching Language:** | English |
| **Module Website (URL)** | eclass.uth.gr |

### (2) Learning Outcomes

| **Module Objectives and Learning Outcomes** |
|---|
| This subject introduces the topic of digital technologies and government and explores the tools and method of digital government and regulation, and the ethical, legal and policy tensions of government increasingly shifting to the digital realm. More broadly this subject will explore ideas of digital governance, which has applications beyond government, as many private sector organizations implement data governance strategies, and as public-private partnerships on digital projects come under greater scrutiny.<br><br>Learning outcomes:<br><br>• Define and describe the concept of digital government and other related terms<br>• Describe and critique a range of real-world example of digital government around the world |

- Demonstrate an understanding of why digital government is occurring and how it is situated in a social and historical context of modernity and rationality
- Articulate the different types of technologies and processes being used by government and the opportunities and risk they present
- Demonstrate the ability to translate academic knowledge into policy recommendations.

**General Skills**

Promoting free, creative and inductive thinking.

Adaptation to new situations.

Search, analysis and synthesis of data and information, using the necessary technologies.

Project design and management.

## (3) Indicative Content

- Internet-based government
- Digital public services and life-events
- Openness in government
- Data-driven government
- Interoperability in government
- Government information systems
- Barriers and drivers in digital government
- Smart government and smart governance

## (4) Teaching Methods - Evaluation

| | |
|---|---|
| **Teaching Method** | Face - to face / Remotely |
| **Teaching Technologies** | Presentation Software use [with multimedia content] and software collaborative environments and dashboards, which increase student engagement and satisfaction.<br><br>Teaching material and interaction between students and tutors will be supported with LMS (eClass and blackboard). |
| **Teaching Structure** | |

| ***Activity*** | ***Effort (hours)*** |
|---|---|
| Tutoring, 4 hours/week | 13 * 4=52 |
| Study | 30 |
| Literature study | 11 |
| Exams' preparation | 30 |
| Final examination | 2 |
| | |
| Total (25 effort hours / ECTS) | 25*5=125 |

| | |
|---|---|
| **Student Evaluation** | Students' evaluation is performed with:<br><br>1. A personal/team assignment. (A).<br><br>2. Examinations (E)<br><br>The final degree is calculated with the following formula:<br><br>TB = 0,7*E + 0,3*A<br><br>Where A takes a value 1-10.<br><br>Successful students must gain:<br><br>(i) E > 5 and<br>(ii) (ii) TB > 5 |

## (5) BIBLIOGRAPHY


- Huntgeburth, J. (2014). Foundations of Digital Government: Leading and Managing in the Digital Era (Springer Texts in Business and Economics) 2014th Edition. Springer.
- Lips, M. (2019). Digital Government: Managing Public Sector Reform in the Digital Era. Routledge.
- West, D. (2005). Digital Government: Technology and Public Sector Performance.
- Sikkut, S. (2022). Digital Government Excellence: Lessons from Effective Digital Leaders. Wiley CIO.
- OECD (2020). OECD Digital Government Studies The Path to Becoming a Data-Driven Public Sector.
- Anthopoulos, L. (2017). Understanding Smart Cities: A Tool for Smart Government or an Industrial Trick? Springer.
- Bolivar, M. P. B. (2017). Smart Technologies for Smart Governments: Transparency, Efficiency and Organizational Issues. Springer.


**- Indicative Journals**:

- Government Information Quarterly
- ACM Digital Government: Research and Practice
- Information Polity
- International Journal of Electronic Government Research
- International Journal of Public Administration in the Digital Age
- Journal of e-Government

INFORMATION SYSTEMS IN GOVERNMENT

## (1) GENERAL

| | | | |
|---|---|---|---|
| **Faculty** | Economic and Management Sciences | | |
| **Department** | Business Administration | | |
| **Level** | Postgraduate | | |
| **COURSE CODE** | M02 | **SEMESTER OF STUDY** | 1st |
| **COURSE TITLE** | Information systems in Government | | |

| **INDEPENDENT TEACHING ACTIVITIES** *In case ECTS credits are awarded in distinct parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, indicate the weekly teaching hours and the total number of credits* | **WEEKLY CONTACT HOURS** | **ECTS** |
|---|---|---|
| | 4 | 7,5 |
| *Add rows if needed. The organization of teaching and the teaching methods used are described in detail in (d).* | | |

| | |
|---|---|
| **COURSE TYPE** | Specific background, skills development, general knowledge. |
| **PREREQUISITE COURSES:** | |
| **LANGUAGE OF INSTRUCTION AND EXAMINATIONS:** | English |
| **THE COURSE IS OFFERED TO ERASMUS STUDENTS** | No |
| **ONLINE COURSE PAGE (URL)** | eclass.uth.gr |

## (2) LEARNING OUTCOMES

**Learning Outcomes**

The course aims to equip students with knowledge and skills on how information systems are applied within government settings to enhance efficiency, transparency, and service delivery. Upon completion, students will have developed:

- **Understanding of Information Systems**:
  - Gain in-depth knowledge of the role of information systems in public sector organizations, particularly in government operations and decision-making processes.
- **Strategic Applications**:
  - Understand how governments use information systems strategically for policymaking, citizen engagement, and improving public services. Study real-world cases to critically evaluate the challenges and successes of these systems.
- **Technical and Operational Skills**:
  - Acquire technical skills related to the design, implementation, and management of information systems for government. These skills include knowledge of e-government systems, database management, and public sector-specific software.
  - Understand the DevOps approach
- **Focus on Emerging Technologies**
  - How AI and ML can be used for predictive analytics, automation, and personalized services.
  - Understand the potential of blockchain technology for enhancing transparency, security, and efficiency in government processes.
  - Acquire knowledge and explore the applications of IoT in areas like smart cities, public safety, and environmental monitoring.
- **Strengthen Citizen Engagement**
  - Understand the concept Digital Participation and how information systems in facilitating citizen participation, including online consultations, e-petitioning, and digital democracy platforms.
- **Open Government Data**
  - Understand the importance of open data initiatives and how they can empower citizens and promote transparency.
  - Discuss the challenges and benefits of sharing data between governments, including issues of privacy, security, and interoperability.
- **Sustainability and Environmental Concerns**
  - Learn on Green IT and mphasize the importance of sustainable IT practices in government, such as energy-efficient data centers and electronic waste management.
  - Explore how information systems can be used to monitor environmental conditions, track sustainability goals, and support climate action.
- **Problem-Solving and Decision-Making**:
  - Develop skills in analyzing and solving problems related to the deployment and management of information systems in government, particularly in areas like interoperability, scalability, and user adoption.

- **Project-Based Learning**
  - **Capstone Project:** Require students to work on a real-world project related to information systems in government, such as designing a new e-government service or conducting a cybersecurity risk assessment.

**General Skills**

The course will foster the following competencies:

1. **Search and analysis of data** using tools.
2. **Adapting to new technological and operational environments** within public institutions.
3. **Decision-making** in complex organizational environments, particularly related to information system management.
4. **Autonomous and team-working abilities** in the design and implementation of government IT solutions.
5. **Critical thinking and self-assessment** regarding the effectiveness of current information systems in government settings.

## (3) COURSE CONTENT

Based on the provided learning objectives, the **course content** for the "Information Systems in Government" module can be structured as follows:

**1. Introduction to Information Systems in Government**

- Overview of information systems in the public sector.
- Importance of information systems for government operations, decision-making, and service delivery.
- Historical context and evolution of information systems in governance.

**2. Strategic Applications of Information Systems in Government**

- How governments use information systems for policymaking and citizen engagement.
- Case studies of successful and unsuccessful implementations of information systems.
- Role of information systems in improving public services (e-government services, online portals, etc.).

**3. Technical and Operational Aspects of Government Information Systems**

- **E-Government Systems**: Design and architecture of e-government platforms, including security, scalability, and user interfaces.
- **Database Management**: Public sector-specific data management techniques, relational databases, and big data in government.
- **DevOps in Government**: Understanding the DevOps methodology and its application in managing government IT systems for continuous improvement.

**4. Emerging Technologies in Government Information Systems**

- **Artificial Intelligence (AI) and Machine Learning (ML)**: Applications for predictive analytics, automation of processes, and personalized public services.
- **Blockchain Technology**: Use of blockchain to enhance transparency, security, and efficiency in governmental processes (e.g., land registry, secure voting, contract management).
- **Internet of Things (IoT)**: How IoT is applied to smart cities, public safety, and environmental monitoring (e.g., traffic control, waste management, air quality monitoring).

**5. Citizen Engagement and Digital Participation**

- **Digital Participation Platforms**: Online consultations, e-petitioning, and platforms for digital democracy.
- Case studies on how information systems facilitate citizen engagement and feedback loops between government and the public.

**6. Open Government Data**

- Importance of open data initiatives in empowering citizens and promoting transparency.
- **Data Sharing**: Challenges and benefits of data sharing across government bodies, with discussions on privacy, security, and interoperability issues.
- Real-world examples of open data projects and their societal impact.

**7. Sustainability and Environmental Concerns in Government Information Systems**

- **Green IT Practices**: Focus on energy-efficient data centers, e-waste management, and sustainable IT policies in the public sector.
- **Information Systems for Environmental Monitoring**: Systems for tracking sustainability goals, monitoring climate change impacts, and supporting environmental protection policies.

**8. Problem-Solving and Decision-Making in Government IT**

- Techniques for solving common challenges in government IT systems, such as ensuring interoperability between legacy systems, managing system scalability, and addressing user adoption barriers.
- Case studies of government IT projects with a focus on troubleshooting and risk management.

**9. Project-Based Learning and Capstone Project**

- **Capstone Project**: Students work on a real-world project involving government information systems. Examples of potential projects include:
  - Designing a new e-government service.
  - Conducting a cybersecurity risk assessment for a public sector organization.
  - Developing a proposal for a smart city infrastructure system.
- The project will require students to apply problem-solving, technical, and strategic skills learned throughout the course.

## (4) TEACHING AND LEARNING METHODS - ASSESSMENT

| | |
|---|---|
| **HOW TO DELIVER**<br>*Face-to-face, Distance learning, etc.* | Distance Learning |

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES<br>Use of ICT in Teaching, Laboratory Education, Communication with students</td><td>Use of Moodle, eclass LMS</td></tr>
<tr><td>TEACHING ORGANIZATION<br><br>The way and methods of teaching are described in details</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Online lectures – webinars</td><td>26</td></tr>
<tr><td>Study hours</td><td>50</td></tr>
<tr><td>Assignments</td><td>50</td></tr>
<tr><td>Course Total</td><td>126</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION<br><br>Description of the evaluation process</td><td>Written assignment. The work includes, among others, the following:<br><br>• Studying a real case from the domain of electronic government<br>• Evaluate alternatives and problems presented and propose a feasible solution.<br>• Study of literature in order to understand the challenges, problems, risks, etc. resulting from the application of technology.<br><br>Presentation of the assignment at the classroom</td></tr>
</table>

## (5) RECOMMENDED-BIBLIOGRAPHY

*- Suggested Bibliography:*


- Pearlson, K.E., Saunders, C.S. and Galletta, D.F. (2019). Managing and Using Information Systems: A Strategic Approach. Wiley.
- Laudon, K. and Laudon, J. (2019). Management Information Systems: Managing the Digital Firm 16th Edition. Pearson Publishing.
- Fitsilis, P. (Ed.). (2022). *Building on Smart Cities Skills and Competences: Human factors affecting smart cities development*. Springer Nature.
- Anthopoulos, L. G. (2017). *Understanding smart cities: A tool for smart government or an industrial trick?* (Vol. 22, p. 293). Cham, Switzerland: Springer International Publishing.
- Dameri, R. P. (2017). Smart City Implementation: creating economic and public value in innovative urban systems . Cham: Springer International Publishing. *Imprint*.


*- Related scientific journals:*

Government Information Quarterly (GIQ)

- Publisher: Elsevier
- Focus: E-government, digital transformation, open data, and IT in public administration.

- https://www.sciencedirect.com/journal/government-information-quarterly

Information Polity

- Publisher: IOS Press
- Focus: Digital government, public sector innovation, and governance.
- https://informationpolity.com/

Electronic Government, an International Journal (EGIJ)

- Publisher: Inderscience
- Focus: E-government applications, digital public services, and policy-making
- https://www.inderscience.com/jhome.php?jcode=eg.

Digital Government: Research and Practice (DGOV)

- Publisher: ACM
- Focus: Computational approaches to digital government and AI in governance.
- https://dl.acm.org/journal/dgov

Public Administration Review (PAR)

- Publisher: Wiley
- Focus: Government IT policy, digital transformation in public administration.
- https://onlinelibrary.wiley.com/journal/15406210

Information Systems Journal (ISJ)

- Publisher: Wiley
- Focus: Broader IS research but includes governance and policy implications.
- https://onlinelibrary.wiley.com/journal/13652575

Journal of E-Governance

- Publisher: IGI Global
- Focus: Policy, governance models, and e-government solutions.
- https://content.iospress.com/journals/journal-of-e-governance/36/4

Transforming Government: People, Process, and Policy

- Publisher: Emerald
- Focus: Public sector digital transformation and citizen-centric services.
- https://www.emeraldgrouppublishing.com/journal/tg

DATA-CENTRIC GOVERNANCE

## (1) GENERAL

| | | | |
|---|---|---|---|
| **Faculty** | Economic and Management Sciences | | |
| **Department** | Business Administration | | |
| **Level** | Postgraduate | | |
| **COURSE CODE** | M03 | **SEMESTER OF STUDY** | 1st |
| **COURSE TITLE** | Data Centric Governance | | |

| **INDEPENDENT TEACHING ACTIVITIES** *In case ECTS credits are awarded in distinct parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, indicate the weekly teaching hours and the total number of credits* | **WEEKLY CONTACT HOURS** | **ECTS** |
|---|---|---|
| | 4x13=52 | 7.5 |
| *Add rows if needed. The organization of teaching and the teaching methods used are described in detail in (d).* | | |

| | |
|---|---|
| **COURSE TYPE** | Compulsory |
| **PREREQUISITE COURSES:** | No |
| **LANGUAGE OF INSTRUCTION AND EXAMINATIONS:** | English |
| **THE COURSE IS OFFERED TO ERASMUS STUDENTS** | No |
| **ONLINE COURSE PAGE (URL)** | eclass.uth.gr |

## (2) LEARNING OUTCOMES

**Learning Outcomes**

The learning outcomes include:

- Understand the fundamental concepts and principles of data-centric governance including their goals, challenges and technologies
- Familiarity of basic concepts and definitions of data-centric governance
- Understand why data-centric governance is important
- Identify the roles and responsibilities of groups involved within data-centric governance
- Understand how data-centric governance can improve the use of data
- Identify the challenges of data-centric governance
- Identify the problems concerning data-centric governance
- Understand the government and its branches
- Knowledge of what the government provides and the benefits
- Understand the implementation of the government
- Understand the definitions of the e-government
- Identify the benefits and limitations of e-government
- Present the timeline of the e-government
- Understand the types and models of e-government
- Explain the architectures of e-government
- Identify the e-government in Greece
- Understand the definitions concerning open data
- Identify the benefits and quality of open data
- Learn why license of open data is needed
- Understand the concept of platforms for open data
- Identify the different formats of open data
- Learn about “cleaning” the data
- Provide an introduction to business models for data-driven public services.
- Highlight the key role of open data in creating public value.
- Highlight the importance of a business-driven approach to open data utilization.
- Explore different business models and opportunities for services based on public data resources.

- Identify the definitions and concepts of AI and machine learning
- Understand the connection of AI and open data
- Understand the implications of the use of open data
- Explain the security and privacy issues when using personal data
- Understand the term of "open" from a legal perspective
- Understand the concept and definitions of data management
- Learn the definitions of linked data
- Understand data management
- Understand the definitions and terminology of AI and machine learning
- Explain what AI and ML can and cannot do
- Explain how an AI project and an AI company are built
- Identify the roles of an AI team
- Understand AI and society
- Understand the definitions of generative AI
- Understand the concepts of LLMs
- Explore the genAI applications
- Identify the lifecycle of an AI project
- Understand the definitions and concepts of machine learning
- Identify the machine learning paradigms
- Learn the models and metrics of machine learning
- Understand parameter learning
- Understand the definitions and concept of clustering
- Learn about non-hierarchical clustering
- Learn about hierarchical clustering
- Understand the fundamental concepts and principles of R
- Understand how data are handled in R
- Learn how to import data in R
- Understand how to work with datasets
- Learn how to create complex variable in R

- Understand how variables can be sorted
- Learn how to deal with duplicated data
- Learn how to export data from R
- Learn how to merge and join data
- Identify functions concerning the graphics, reporting and analytics in R
- Learn how to define new functions

**General Skills**

The "Innovative software development methods for smart cities" module may develop a range of skills, including:

1. Programming skills (introductory): Students may learn how to write code in programming languages.
2. Software engineering skills: Students may learn how to design, develop, and maintain software systems using modern software engineering practices and tools.
3. Project management skills: Students may learn how to plan, manage, and execute software development projects using agile methodologies and project management tools.
4. Communication and collaboration skills: Students may learn how to work in a team, communicate effectively, and collaborate with stakeholders from different backgrounds such as government officials, urban planners, and community groups.
5. Innovation and entrepreneurship skills: Students may learn how to identify innovative ideas, develop prototypes, and commercialize software products and services for data-centric governance.

## (3) COURSE CONTENT

The following is the lecture plan for "Data centric governance" module:

1. Fundamentals of data-centric governance
    a. Definitions
    b. Benefits
    c. Challenges
2. Government digital transformation
    a. Government
    b. E-Government
    c. Government in Greece
3. Open data
    a. Introducing open data
    b. New business models for data-driven services
    c. Artificial intelligence and open data
    d. Data management for open data
4. Artificial Intelligence

a. Introducing artificial intelligence
b. Generative artificial intelligence
c. Machine learning
d. Clustering

5. Using R in data-centric governance
   a. Fundamentals in R
   b. Data structures in R
   c. Supplementary material in R

## (4) TEACHING AND LEARNING METHODS - ASSESSMENT

| | |
|---|---|
| **HOW TO DELIVER**<br>*Face-to-face, Distance learning, etc.* | Distance Learning |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | **Use of Moodle, eclass LMS** |
| **TEACHING ORGANIZATION** | |

| ***Activity*** | ***Semester Workload*** |
|---|---|
| Online lectures – webinars | 52 |
| Study hours | 50 |
| Assignments | 50 |
| **Course Total** | ***152*** |

| | |
|---|---|
| **STUDENT EVALUATION** | Written assignment. The work includes, among others, the following:<br>• Studying a real case from the domain of data-centric governance<br>• Evaluate alternatives and problems presented and propose a feasible solution.<br>• Study of literature in order to understand the challenges, problems, risks, etc. resulting from the application of technology.<br>Presentation of the assignment at the classroom |

## (5) RECOMMENDED-BIBLIOGRAPHY

| |
|---|
| *- Suggested Bibliography:*<br><br>In lectures<br><br>*- Related scientific journals:* |

## PUBLIC SECTOR INNOVATION AND STRATEGY

### (1) GENERAL INFORMATION

| | | | | |
|---|---|---|---|---|
| **Faculty** | Economic and Management Sciences | | | |
| **Department** | Business Administration | | | |
| **Level** | Postgraduate | | | |
| **COURSE CODE** | M04 | **SEMESTER** | 1st | |
| **COURSE TITLE** | **Public sector innovation and Strategy** | | | |
| **INDEPENDENT TEACHING ACTIVITIES** *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.* | | | **WEEKLY TEACHING HOURS** | **CREDIT UNITS** |
| | | | 4 | 7.5 |
| *Add rows if needed. The teaching organization and teaching methods used are described in detail in (d).* | | | | |
| **COURSE TYPE** | Compulsory | | | |
| **PREREQUISITE COURSES:** | NO | | | |
| **LANGUAGE OF TEACHING and EXAMS:** | English | | | |

| | |
|---|---|
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | NO |
| **ELECTRONIC COURSE PAGE (URL)** | eclass.uth.gr |

**(2) LEARNING OUTCOMES**

| **Learning Outcomes** |
|---|
| Digital innovation is the use of digital technology during the process of innovating. Digital innovation can also be used to describe, fully or partly, the outcome of innovation. Digital innovation has radically changed the nature and structure of new products and services, spawned novel value creation and value appropriation pathways, enabled innovation collectives that involve dynamic sets of actors with diverse goals and capabilities, produced a new breed of innovation processes, and, more broadly, transformed entire industries in its wake. This transition from innovation to digital innovation comes as a golden opportunity to be seized upon by information systems (IS) researchers.<br>This module addresses current issues in digital innovation, planning and management in government. It discusses the fundamentals in innovation and its management under the lens of digital technologies. It uses techniques for proper innovation definition, the estimation of its success, the selection of innovation and their strategic alignment. Moreover, it presents methods for ideation and design thinking in government, innovation management and sustainable innovation planning in accordance with government strategy.<br><br>Upon successful completion of the course, students should be able to describe:<br>• How do digital innovations form/evolve in government?<br>• How should actors/entities organize for innovation?<br>• How does the nature of innovation and the organization of innovation interact?<br>• How can innovation be managed under the lens of a strategy?<br>• The processes for ideation and design thinking for digital innovation development. |
| **General Skills** |
| Promoting free, creative and inductive thinking.<br><br>Adaptation to new situations.<br><br>Search, analysis and synthesis of data and information, using the necessary technologies.<br><br>Project design and management. |

**(3) COURSE CONTENT**

| |
|---|
| • Introduction to Innovation and digital innovation |

- Innovation drivers, barriers, and pre-requisites (Technology Affordances and Constraints)
- Business model innovation
- Innovation management
- Defining strategy for innovation
- Dynamic Problem–Solution Design Pairing
- Design thinking

**(4) TEACHING AND LEARNING METHODS - EVALUATION**

| | |
|---|---|
| **TEACHING METHOD**<br>*Face to face, distance learning, etc..* | FACE TO FACE, LAB, Remote |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES**<br>*Use of ICT in Teaching, in Laboratory Education, in Communication with students* | USE OF ICT IN TEACHING, LABORATORY EDUCATION, ELECTRONIC COMMUNICATION WITH STUDENTS |
| TEACHING ORGANIZATION<br>*The teaching methodologies are described in detail.* | |

| ***Activity*** | ***Semester Workload*** |
|---|---|
| Lectures | 13 |
| Practical Exercise | 26 |
| Publications study | 84 |
| Assignments | 55 |
| Exams' Preparation | 2 |
| Final Examination | |
| | |
| ***Course Total Effort*** | ***180*** |

| | |
|---|---|
| **STUDENT EVALUATION**<br>*Description of the evaluation process*<br>. | Written Examination (GA) with a weight of 70% at the end of the semester, which includes multiple choice questions. The student can also implement an optional assignment (EP) with a weight of 30%. In order for the student's attendance to be considered successful, the Final Grade (TB) must be> = 5. TB is calculated as follows:<br><br>TB = MAX (GA, 0.7xGA + 0.3xEP) |

**(5) BIBLIOGRAPHY**

Wittington, D. (2018). Digital Innovation and Entrepreneurship. Cambridge University Press.
Laudato, A. (2022). Fostering Innovation: How to Build an Amazing IT Team. Wiley.
Schilling, M. (2019). Strategic Management of Technological Innovation. McGraw Hill Education.
Lewrick, M., Link, P. and Leifer, L. (2020). The Design Thinking Toolbox: A Guide to Mastering the Most Popular and Valuable Innovation Methods. Wiley.

Saldanha, T. and McDonald, R.A. (2019). Why Digital Transformations Fail: The Surprising Disciplines of How to Take Off and Stay Ahead. Berrett-Koehler Publishers.

Journals
Technovation
Journal of Innovation & Knowledge
Journal of Engineering and Technology Management
Government Information Quarterly
Digital Business

## DATA ANALYTICS

### (1) GENERAL

| | | | | |
|---|---|---|---|---|
| **Faculty** | Economic and Management Sciences | | | |
| **Department** | Business Administration | | | |
| **Level** | Postgraduate | | | |
| **COURSE CODE** | M07 | **SEMESTER OF STUDY** | 2nd | |
| **COURSE TITLE** | Data Analytics | | | |
| **INDEPENDENT TEACHING ACTIVITIES** *In case ECTS credits are awarded in distinct parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, indicate the weekly teaching hours and the total number of credits* | | | **WEEKLY CONTACT HOURS** | **ECTS** |
| | | | 4 | 7,5 |
| *Add rows if needed. The organization of teaching and the teaching methods used are described in detail in (d).* | | | | |
| **COURSE TYPE** *general background, specific background, specialization, general knowledge, skills development* | Specialization | | | |
| **PREREQUISITE COURSES:** | | | | |
| **LANGUAGE OF INSTRUCTION AND EXAMINATIONS:** | English | | | |
| **THE COURSE IS OFFERED TO ERASMUS STUDENTS** | No | | | |
| **ONLINE COURSE PAGE (URL)** | | | | |

### (2) LEARNING OUTCOMES

| **Learning Outcomes** |
|---|
| The learning outcomes include:<br>• Know the terminology of data analysis as it is applied in the field of government and business. |

- Distinguish the main categories of data analysis models and their special features.
- Use statistical tools to successfully handle data analysis models.
- Know the basic use of at least one software tool for data analysis.

**General Skills**

The "Data Analytics" module may develop a range of skills, including:

- Problem-solving skills: In this module, students will learn how to identify problems and develop solutions that can help cities become more efficient.
- Communication skills: Students will learn how to communicate complex ideas to a wide range of stakeholders, including city officials, community groups, and technology vendors.
- Collaborative skills: This module will provide opportunities for students to work collaboratively on projects and assignments, developing their ability to work effectively in teams.
- Technical skills: Students will gain a deep understanding of the technical platforms and tools used in smart cities, including IoT devices, cloud computing, and contextual data.
- Overall, this module will help students develop a range of transversal skills that are highly valued by employers in a range of industries. These skills will enable students to be adaptable and versatile, able to work effectively in a rapidly changing technological landscape.

## (3) COURSE CONTENT

The course attempts to lay the foundations for Data Analysis in government and business. It introduces students to the basic concepts of data analysis, business intelligence, and machine learning, while encouraging a critical understanding of the hypotheses underpinning these methodologies and the ethical and legal implications of data analysis.
Introduction to Data Analysis, Data Analysis Models, Introduction to Business Intelligence, Statistical Tools, Data Visualization, Introduction to Machine Learning, Regression Use, Discrimination and Trade-Discrimination / Overfitting, introduction to R for performing data analytics.

The following is the lecture plan for " Data Analytics" module:

1. Introduction to Data Science
2. Business Problems and Solutions
3. Supervised Segmentation
4. Model Fitting
5. Overfitting
6. Similarity
7. Introduction to R Language
8. Tidy Data Using R Language
9. Graphs Using R Language I
10. Graphs Using R Language II
11. A Predictive Model Using R Language
12. K- means and Cluster Using R Language
13. A Simple Project Using R Language

## (4) TEACHING AND LEARNING METHODS - ASSESSMENT

| | |
|---|---|
| **HOW TO DELIVER**<br>*Face-to-face, Distance learning, etc.* | Distance Learning |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES**<br>*Use of ICT in Teaching, Laboratory Education, Communication with students* | Use of Moodle, eclass LMS |
| **TEACHING ORGANIZATION**<br>*The way and methods of teaching are described in detail.* | ***Activity*** / ***Semester Workload***<br>Online lectures – webinars: 26<br>Study hours: 50<br>Assignments: 50<br>**Course Total**: ***126*** |
| **STUDENT EVALUATION**<br>*Description of the evaluation process* | Written assignment and code.<br><br>The objective of this assignment is to design and create a model using open data and R language.<br><br>Presentation of the assignment at the classroom |

## (5) RECOMMENDED-BIBLIOGRAPHY

- *Suggested Bibliography:*

Provost, Foster, Fawcett, Tom. (2013). Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking. Sebastopol, Calif., O'Reilly Media.

Wickham, H., Cetinkaya-Rundel M., Grolemund, G., (2023). R for Data Science, 2nd edition. Sebastopol, Calif., O'Reilly Media.

Winston, W.L., (2021). Analytics Stories: Using Sata to Make Good Things Happen. Indianapolis, Indiana, Wiley.

Lantz, B., (2023). Machine Learning with R, 4th edition. Packt Publishing.

# SUSTAINABLE MANAGEMENT OF PROJECTS IN GOVERNMENT

## (1) GENERAL INFORMATION

| | | | |
|---|---|---|---|
| **Program** | Economic and Management Sciences | | |
| **DEPARTMENT** | Business Administration | | |
| **LEVEL OF STUDY (BSc/MSc)** | Postgraduate | | |
| **COURSE CODE** | M08 | **SEMESTER** | 2nd |
| **COURSE TITLE** | Sustainable Management of Projects in Government | | |

| INDEPENDENT TEACHING ACTIVITIES<br>*in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.* | WEEKLY TEACHING HOURS | CREDIT UNITS |
|---|---|---|
| | 4 | 7.5 |
| *Add rows if needed. The teaching organization and teaching methods used are described in detail in (d).* | | |

| | |
|---|---|
| **COURSE TYPE** | Compulsory |
| **PREREQUISITE COURSES:** | NO |
| **LANGUAGE OF TEACHING and EXAMS:** | English |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | NO |
| **ELECTRONIC COURSE PAGE (URL)** | eclass.uth.gr |

**(2) LEARNING OUTCOMES**

| **Learning Outcomes** |
|---|
| The course has a double objective: first to offer the theoretical background and the technical skills regarding project management and second, to make students understand how they can manage projects and change in government. In order to serve these aspirations, the learning objectives are defined in a rigorous manner.<br>Learning outcomes:<br>• To be able to define project and project management<br>• To be able to understand and explain project management standards<br>• To enhance their ability to apply project management techniques in practice<br>• To understand how to handle change and coalitions<br>• To be able to describe organizational change |
| **General Skills** |
| Promoting free, creative and inductive thinking.<br><br>Adaptation to new situations. |

Search, analysis and synthesis of data and information, using the necessary technologies.

Work in an interdisciplinary environment.

Project design and management.

**(3) COURSE CONTENT**

Organizations and Projects
- Basic Function of an Organization
- Functional Elements

<History of PM>
- Society – Economy – Technology - Politics

<Why and How the Project is Born>
- Limitations – Mechanisms – Dimensions -Definitions

<Stakeholders>
- Historical elements of stakeholders' theory
- Main points of stakeholders' theory
- Stakeholders' analysis

<Participatory Design>
- Identification - Analysis models
- Extensions, participation and design
- Advantages & Disadvantages
- Classification of methods

<Project Life Cycle>
- What it is
- Its phases and management
- Its necessity in planning
- Organization, project, program, operation
- Scope of the project and its place in the methodology
- Review of $PM^2$

<Network Analysis>
- Precedence Relationship - Sequences
- Types of Activity Constraints

<Resource Analysis>
- Types of Resources
- Critical Path/Critical Chain
- Linking Resources and Activities

<Time - Cost Relationship>
- What is the problem and when does it occur
- The linear relationship between duration and cost
- The logic of the unit's shortening cost table
- The algorithmic approach to incremental shortening in the most economical way

<Basic Concepts>
- The Logic of Activity and Project Monitoring
- Key Terms

<Measuring Project Progress>
- What We Do in Planning
- How We Implement It in Practice
- Methods
- Example

<Earned Value Management>
- Generating Duration and Cost Estimates
- Evaluating Results
- Advantages and Disadvantages

**(4) TEACHING AND LEARNING METHODS - EVALUATION**

| | |
|---|---|
| **TEACHING METHOD**.. | FACE TO FACE, LAB, Remote |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES**<br>*Use of ICT in Teaching, in Laboratory Education, in Communication with students* | USE OF ICT IN TEACHING, LABORATORY EDUCATION, ELECTRONIC COMMUNICATION WITH STUDENTS |
| **TEACHING ORGANIZATION**<br>*The teaching methodologies are described in detail.* | |

| ***Activity*** | ***Semester Workload*** |
|---|---|
| Lectures | 13 |
| Practical Exercise | 26 |
| Publications study | 84 |
| Assignments | 55 |
| Exams' Preparation | 2 |
| Final Examination | |
| | |
| ***Course Total Effort*** | ***180*** |

| | |
|---|---|
| **STUDENT EVALUATION**<br>*Description of the evaluation process*<br>. | To successfully complete the course, the following requirements need to be fulfilled:<br><br>Written Examination (GA) with a weight of 70% at the end of the semester, which includes multiple choice questions. The student can also implement an optional assignment (EP) with a weight of 30%. In order for the student's attendance to be considered successful, the Final Grade (TB) must be> = 5. TB is calculated as follows:<br><br>TB = MAX (GA, 0.7xGA + 0.3xEP) |

**(5) BIBLIOGRAPHY**

PMI (2021). A Guide to the Project Management Body of Knowledge (PMBOK Guide) and The Standard for Project Management (PMBOK® Guide)

Schwalbe, K. (2021). An Introduction to Project Management, Seventh Edition: Predictive, Agile, and Hybrid Approaches. Schwalbe Publishing.

Heagney, J. (2016). Fundamentals of Project Management. AMACOM

Kotter, J. P. (2012). Leading Change. Harvard Business Review Press.

Cameron, E. and Green, M. (2019). Making Sense of Change Management: A Complete Guide to the Models, Tools and Techniques of Organizational Change. CPI Group Publishing.

Journals
International Journal of Project Management
Project Leadership and Society
Government Information Quarterly

## CITIZEN ENGAGEMENT AND NEW MEDIA

### (1) GENERAL

| | | | |
|---|---|---|---|
| **Faculty** | Economic and Management Sciences | | |
| **Department** | Business Administration | | |
| **Level** | Postgraduate | | |
| **COURSE CODE** | M09 | **SEMESTER OF STUDY** | 2nd |
| **COURSE TITLE** | Citizen engagement and New Media | | |

| **INDEPENDENT TEACHING ACTIVITIES** *In case ECTS credits are awarded in distinct parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, indicate the weekly teaching hours and the total number of credits* | **WEEKLY CONTACT HOURS** | **ECTS** |
|---|---|---|
| | 4 | 7,5 |
| *Add rows if needed. The organization of teaching and the teaching methods used are described in detail in (d).* | | |

| | |
|---|---|
| **COURSE TYPE** | Compulsory |

| | |
|---|---|
| **PREREQUISITE COURSES:** | No |
| **LANGUAGE OF INSTRUCTION AND EXAMINATIONS:** | English |
| **THE COURSE IS OFFERED TO ERASMUS STUDENTS** | No |
| **ONLINE COURSE PAGE (URL)** | eclass.uth.gr |

## (2) LEARNING OUTCOMES

| **Learning Outcomes** |
|---|
| The learning outcomes include:<br>• Understand the basic concepts, principles, architectures, and challenges of citizen engagement and the new media as tool for communication and networking.<br>• Knowledge of the key components and technologies involved in creating new media networks.<br>• Develop an understanding of new media capabilities in enhancing citizen engagement and how to harvest the benefits from these capabilities.<br>• Understanding of the role of groups, individuals and media intermediators in achieving their goals.<br>• Awareness of the latest trends, challenges and opportunities in citizen journalism and citizen activism for achieving local, regional, country level and worldwide change. |
| **General Skills** |
| The " Citizen engagement and New Media " module may develop a range of skills, including: +++<br>• Problem-solving skills: In this module, students will learn how to identify problems and develop solutions that can help them create and navigate through the new media more efficiently and enhance their participation in policy and opinion formulation .<br>• Communication skills: Students will learn how to communicate complex ideas to a wide range of stakeholders, including city officials, community groups, and technology vendors.<br>• Collaborative skills: This module will provide opportunities for students to work collaboratively on projects and assignments, developing their ability to work effectively in teams.<br>• Leadership skills: Students will have opportunities to lead projects and initiatives, developing their ability to inspire and motivate others.<br>• Technical skills: Students will gain a deep understanding of the technical platforms and tools used in new media.<br>• Business skills: This module will provide an understanding of the business models and strategies used |

in the new media industry, as well as the legal and ethical considerations that must be taken into account.

- Overall, this module will help students develop a range of transversal skills that are highly valued by employers in a range of industries. These skills will enable students to be adaptable and versatile, able to work effectively in a rapidly changing technological landscape.

## (3) COURSE CONTENT

The following is the lecture plan for "Citizen engagement and New Media" module:

1. The Changing Media – The Changing World

2. Media and Society

3. Types of Media and their impact

- Books
- Prin and e-Newspaper
- Magazines
- Recorded Music
- Radio
- Film and Video
- Television
- Social Media
- Video Games
- Public Relations

4. Media Issues and Ethics

- Advertising
- Media Uses and Impacts
- Media Policy and Law
- Media Ethics
- Global Communications Media

5. Citizen Engagement

a. Youth
b. Women
c. Elderly
d. Social and political change through engagement (opportunities and challenges)

## (4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>HOW TO DELIVER<br>Face-to-face, Distance learning, etc.</td><td>Distance Learning</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of Moodle, eclass LMS</td></tr>
<tr><td>TEACHING ORGANIZATION<br><br>The way and methods of teaching are described in detail.</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Online lectures – webinars</td><td>26</td></tr>
<tr><td>Study hours</td><td>50</td></tr>
<tr><td>Assignments</td><td>50</td></tr>
<tr><td>Course Total</td><td>126</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION<br><br>Description of the evaluation process</td><td>Written assignment.<br><br>The objective of this assignment is to design a smart city platform that addresses the needs of a specific city or a smart city set of services. The platform should leverage open-source technologies and adhere to principles of good software engineering, data privacy, and security. In addition, the design should consider the unique challenges and opportunities of the target city, and how the platform can support the city's smart city goals.<br><br>Presentation of the assignment at the classroom</td></tr>
</table>

## (5) RECOMMENDED-BIBLIOGRAPHY

*- Suggested Bibliography:*

Straubhaar J., Larose R. & Davenport L. (2025), Media Now, Understanding Media, Culture and Technology, 11th Edition. Cengage.

Adria M., Mao Y. (2017), Handbook of Research on Citizen Engagement and Public Participation in the Era of New Media, IGI Global.

Marino, V. and Lo Presti, L. (2018), "From citizens to partners: the role of social media content in fostering citizen engagement", Transforming Government: People, Process and Policy, Vol. 12 No. 1, pp. 39-60. https://doi.org/10.1108/TG-07-2017-0041

Agostino, D. (2013), “Using social media to engage citizens: a study of Italian municipalities”, Public Relations Review, Vol. 39 No. 3, pp. 232-234.

Agostino, D. and Arnaboldi, M. (2016), "A measurement framework for assessing the contribution of social media to public engagement", Public Management Review, Vol. 18 No. 9, pp. 1289-1307.

Ashley, C. and Tuten, T. (2015), "Creative strategies in social media marketing: an exploratory study of branded social content and consumer engagement", Psychology & Marketing, Vol. 32 No. 1, pp. 15-27.

Basolo, V. and Yerina, A. (2014), "The use of social media for citizen engagement: the case of SAPAS in la paz, Mexico", Digital Government Society 2014 proceedings of the 15th Annual International Conference on Digital Government Research in Aguascalientes City Mexico, ACM, New York, NY, pp. 192-195.

Bellström, P., Magnusson, M., Pettersson, S.J. and Thorén, C. (2016), "Facebook usage in a local government: a content analysis of page owner posts", Transforming Government: People, Process and Policy, Vol. 10 No. 4, pp. 548-567.

Bonsón, E., Royo, S. and Ratkai, M. (2015), "Citizen's engagement on local governments' Facebook sites: an empirical analysis: the impact of different media and content types in Western Europe", Government Information Quarterly, Vol. 32 No. 1, pp. 52-62.

Boyd, D., Golder, S. and Lotan, G. (2010), Tweet, Tweet, Retweet: Conversational Aspects of Retweeting on Twitter, HICSS-43, January 6, IEEE, Kauai, HI.

Bryson, J.M., Crosby, B.C. and Bloomberg, L. (2014), "Public value governance: moving beyond traditional public administration and the new public management", Public Administration Review, Vol. 74 No. 4, pp. 445-456.

Campbell, D.A., Lambright, K.T. and Wells, C.J. (2014), "Looking for friends, fans, and followers? Social media use in public and nonprofit human services", Public Administration Review, Vol. 74 No. 5, pp. 655-663.

Cho, M., Schweickart, T. and Haase, A. (2014), "Public engagement with nonprofit organizations on facebook", Public Relations Review, Vol. 40 No. 3, pp. 565-567.

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Hofmann, S., Beverungen, D., Räckers, M. and Becker, J. (2013), "What makes local governments' online communications successful? Insights from a multi-method analysis of Facebook", Government Information Quarterly, Vol. 30 No. 4, pp. 387-396.

Kampf, R., Manor, I. and Segev, E. (2015), "Digital diplomacy 2.0? A cross-national comparison of public engagement in Facebook and Twitter", The Hague Journal of Diplomacy, Vol. 10 No. 4, pp. 331-362.

Kaplan, A.M. and Haenlein, M. (2010), "Users of the world, unite! the challenges and opportunities of social media", Business Horizons, Vol. 53 No. 1, pp. 59-68.

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Kim, Y., Hsu, S.H. and De Zúñiga, H.G. (2013), "Influence of social media use on discussion network heterogeneity and civic engagement: the moderating role of personality traits", Journal of Communication, Vol. 63 No. 3, pp. 498-516.

Kwok, L. and Yu, B. (2013), "Spreading social media messages on facebook an analysis of restaurant business-to-consumer communications", Cornell Hospitality Quarterly, Vol. 54 No. 1, pp. 84-94.

Lee, D., Hosanagar, K. and Nair, H. (2014), "The effect of social media marketing content on consumer engagement: evidence from facebook", available at: SSRN2290802

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Lutz, C., Hoffmann, C.P. and Meckel, M. (2014), "Beyond just politics: a systematic literature review of online participation", First Monday, Vol. 19 No. 7, available at: http://dx.doi.org/10.5210/fm.v19i7.5260

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Michailidou, A. (2008), "Democracy and new media in the European Union: communication or partecipation deficit?", Journal of Contemporary European Research, Vol. 4 No. 4, pp. 346-368.

Moreno-Jiménez, J.M., Pérez-Espés, C. and Velázquez, M. (2014), "E-Cognocracy and the design of public policies", Government Information Quarterly, Vol. 31 No. 1, pp. 185-194.

Rowe, G. and Frewer, L.J. (2005), "A typology of public engagement mechanisms", Science, Technology & Human Values, Vol. 30 No. 2, pp. 251-290.

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Smith, S. and Dalakioridou, E. (2009), "Contextualising public (e)Participation in the governance of the European Union", European Journal of ePractice, Vol. 7 No. 1, pp. 4-14.

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Stieglitz, S. and Dang-Xuan, L. (2012). "Political communication and influence through microblogging-an empirical analysis of sentiment in twitter messages and retweet behaviour", 45th Hawaii International Conference on System Science (HICSS), IEEE, pp. 3500-3509, doi: 10.1109/HICSS.2012.476.

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Suh, B., Lichan, H., Pirolli, P. and Chi, E.H. (2010). "Want to be retweetes? Large scale anlytics on factors impacting retweet in twitter network", 2010 IEEE International Conference on Social computing (socialcom), 2010/IEEE Second International Conference on Privacy, Security, Risk and Trust, pp. 177-184, doi: 10.1109/SocialCom.2010.33.

Vesnic-Alujevic, L. (2012), "Political participation and web 2.0 in Europe: a case study of Facebook", Public Relations Review, Vol. 38 No. 3, pp. 466-470.

Warren, A.M., Sulaiman, A. and Jaafar, N.I. (2014), "Social media effects on fostering online civic engagement and building citizen trust and trust in institutions", Government Information Quarterly, Vol. 31 No. 2, pp. 291-301, doi: 10.1016/j.giq.2013.11.007.

Waters, R. and Williams, J.M. (2011), "Squawking, tweeting, cooing, and hooting: analyzing the communication patterns of government agencies on Twitter", Journal of Public Affairs, Vol. 11 No. 4, pp. 353-363.

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Zaichkowsky, J.L. (1985), "Measuring the involvement construct", Journal of Consumer Research, Vol. 12 No. 3, pp. 341-352.

- *Related scientific journals:*

## RESEARCH METHODS AND SKILLS

### (1) GENERAL INFORMATION

| | | | |
|---|---|---|---|
| **FACULTY** | Economic and Management Sciences | | |
| **DEPARTMENT** | Business Administration | | |
| **LEVEL OF STUDY (BSc/MSc)** | Postgraduate | | |
| **COURSE CODE** | M10 | **SEMESTER** | 2nd |
| **COURSE TITLE** | **Business Research Methods** | | |

| **INDEPENDENT TEACHING ACTIVITIES** *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly* | **WEEKLY TEACHING HOURS** | **CREDIT UNITS** |
|---|---|---|

| | | |
|---|---|---|
| *for the whole course, indicate the weekly teaching hours and the total number of credits.* | | |
| | 4 | 7.5 |
| *Add rows if needed. The teaching organization and teaching methods used are described in detail in (d).* | | |

| | |
|---|---|
| **COURSE TYPE** | Compulsory |
| **PREREQUISITE COURSES:** | NO |
| **LANGUAGE OF TEACHING and EXAMS:** | English |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | NO |
| **ELECTRONIC COURSE PAGE (URL)** | eclass.uth.gr |

**(2) LEARNING OUTCOMES**

| **Learning Outcomes** |
|---|
| Research has become an indispensable component of all academic programs. Although the educational programs in universities may vary in content, practically there is always some requirement for producing research in all such programs.<br><br>The module starts with an analytical introduction to the concept of scientific research and what it entails, along with an overview of all the appropriate and systematic methodologies to accomplish research objectives in various kinds of business problems. Next, the basic types of research designs, strategies and methods are discussed aiming to equip students with the knowledge of the realm of all known business research approaches developed to address a variety of problems and pertinent research questions. Furthermore, the attributes of quality in research, as well as the ethics which need to be incorporated in any kind of research undertaken are discussed. In addition, analysis of peer-reviewed publications will be conducted and determination of all aspects in the researching process will be highlighted attempting to link theory with practical examples and case studies.<br><br>Learning outcomes:<br>• Demonstrate knowledge of the concept of research in general and its aspects in the business domain<br>• Realize the reasons for conducting research<br>• Understand how it is done<br>• Acquire information and knowledge about relevant terminology and methods of qualitative, quantitative and combined research, as well as the ability to interpret and evaluate various types of published research studies |

- Understand the systematic process of transforming a research idea into specific scientific objectives and content, as well as the limitations that come with the development of each kind of research approach
- Develop the skills to adequately address the design, preparation and carrying out of research studies appropriate at the Master's level of education and useful for following graduate-level dissertations
- Familiarize with different research designs, strategies and methods
- Become aware of the attributes of quality research and ethics in conducting scientific research
- Be able to properly apply business research methodologies, the adequate tools and techniques for addressing a variety of problems and specific research questions aiming to accomplish pertinent goals

**General Skills**

Promoting free, creative and inductive thinking.

Exercise criticism and self-criticism.

Adaptation to new situations.

Autonomous work.

Demonstration of social, professional and moral responsibility and sensitivity in gender issues.

Search, analysis and synthesis of data and information, using the necessary methodologies.

Possible production of new research ideas.

Research project design, management and execution.

**(3) COURSE CONTENT**

- Introduction to Business Research Methodologies
- Designing your Research
- Literature Review
- Theoretical Framework, Research Questions and Hypotheses
- Secondary Data
- Sampling Techniques
- Variable Types and Data Visualization
- Observation
- Interview
- Processing and Analyzing Quantitative Data
- Processing and Analyzing Qualitative Data
- Writing a Research Proposal
- Research Ethics

Other educational activities that will take place during and after the course's lectures include:

- Homework problems offered at the end of each lecture for the students to become familiar with the course's content that will gradually evolve. These activities are optional and will not be graded.
- Case studies and research papers that will be discussed in class as per their content and their correlation to the course's learning materials

- Possible additional lectures given by researchers that used various methods to accomplish their research objectives

**(4) TEACHING AND LEARNING METHODS - EVALUATION**

| | |
|---|---|
| **TEACHING METHOD**<br>*Face to face, distance learning, etc..* | FACE TO FACE, LAB, Remote |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES**<br>*Use of ICT in Teaching, in Laboratory Education, in Communication with students* | USE OF ICT IN TEACHING, LABORATORY EDUCATION, ELECTRONIC COMMUNICATION WITH STUDENTS |
| **TEACHING ORGANIZATION**<br>*The teaching methodologies are described in detail.* | |

| ***Activity*** | ***Semester Workload*** |
|---|---|
| Lectures | 13 |
| Practical Exercise | 26 |
| Publications study | 84 |
| Assignments | 55 |
| Exams' Preparation | 2 |
| Final Examination | |
| | |
| ***Course Total Effort*** | ***180*** |

**STUDENT EVALUATION**

*Description of the evaluation process*

.

To successfully complete the course, the following requirements need to be fulfilled:

1) A 1st written assignment which will refer to the identification of a particular research idea/problem that needs to be addressed, along with the specific research questions, objectives and possible methodological approaches. This assignment constitutes the first stage for developing the 2nd assignment
2) A 2nd written assignment in the form of a complete research dissertation proposal that needs to follow specific instructions given, and
3) A brief presentation of the dissertation proposal (2nd assignment)

The final grade for the course will be determined based on the evaluation of:

a. the written assignments submitted in due time (1st and 2nd assignments that will account for 20% and 50% of the final grade respectively)
b. the final presentation of the dissertation proposal (in powerpoint) that will contribute 30% to the final grade

**(5) BIBLIOGRAPHY**

Thornhill, A., Lewis, P. and Saunders, M.N.K. (2019). Research Methods For Business Students, Pearson
Creswell, J.W. and Creswell, J.D. (2022). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, SAGE
Aityan, S.K. (2022). Business Research Methodology. Research Process and Methods, Springer
Bergin, T. (2018) An Introduction to Data Analysis: Quantitative, Qualitative and Mixed Methods, SAGE
Yin, R.K. (2017). Case Study Research and Applications: Design and Methods, SAGE
Cameron, S., Price, D. (2009). Business Research Methods: A Practical Approach, CIPD
Field, A. (2013). Discovering Statistics Using IBM SPSS, SAGE
Lind, D.A., Marchal, W.G., Wathen, S.A. (2012). Basic Statistics for Business and Economics, McGraw Hill.
Fisher, C. (2007) Researching and Writing a Dissertation: A Guidebook for Business Students, Pearson

## DIPLOMA THESIS

| **1.GENERAL** | | | |
|---|---|---|---|
| **FACULTY** | Economic and Management Sciences | | |
| **DEPARTMENT** | Business Administration | | |
| **LEVEL OF STUDIES** | Postgraduate | | |
| **COURSE CODE** | M11 | **SEMESTER OF STUDY** | 3rd |
| **COURSE TITLE** | Diploma Thesis | | |

| **INDEPENDENT TEACHING ACTIVITIES** | **WEEKLY TEACHING HOURS** | **CREDIT UNITS** |
|---|---|---|
| | | 30 |

| | |
|---|---|
| **TYPE OF COURSE** | REQUIRED |
| **PREREQUISITE COURSES:** | None |
| **LANGUAGE OF TEACHING AND EXAMINATION:** | English |
| **THE COURSE IS OFFERED TO ERASMUS STUDENTS** | No |

| | |
|---|---|
| **ELECTRONIC COURSE PAGE (URL)** | eclass.uth.gr/eclass/courses |

**2. LEARNING OUTCOMES**

*The main learning objective to be achieved during the preparation of the thesis is for the student to develop the necessary knowledge background related to the critical reflection of the subject matter of the thesis and the systematic application of research methodologies and techniques. Specifically, upon completion of the Master's thesis, the student should demonstrate that:*

- *understands, critically evaluates and applies techniques to identify and develop a research topic that is a research problem relevant to the field of Project and Programme Management.*
- *selects and clearly formulates specific research objectives and problems that present (to a degree of postgraduate level) scientific originality and practical interest,*
- *understands and evaluates the interrelationships between research objectives and problems, scientific literature, research methodologies, data collection and analysis techniques, inference, and ultimately management decision-making methods,*
- *applies search procedures and proceeds to the critical review of scientific literature relevant to the research topic,*
- *conducts research and draws conclusions that are understandable and lead to interesting results,*
- *understand the differences between quantitative research and qualitative research strategies, and apply them either independently or in combination, depending on the specific requirements of the research,*
- *understands the advantages and disadvantages of research techniques, systematically applies research techniques and documents the choices made,*
- *it shall be based on primary and/or secondary data which it shall check for adequacy, reliability and validity,*
- *formulate understandable and useful conclusions that demonstrate knowledge of the subject matter, and the ability to critically review other relevant published research results,*
- *understands and articulates limitations - weaknesses of the research work,*
- *identifies possible directions for future research in the specific area and in line with the initial research objectives, and finally*

- *generally enriches his/her cognitive background in order to enhance his/her further research and professional aspirations.*

**General skills**

*The postgraduate thesis aims to prepare, through a process of mainly personal research and under the guidance of the supervising professor, a thesis on the topic - subject chosen and proposed after a relevant proposal. The above thesis should present:*

- *a clearly defined contribution to Business Administration, either through conducting original research or through the testing and application of relevant theories and methodologies,*
- *adequately documented research methodology and systematic application and use of appropriate data collection, analysis and processing techniques,*
- *comprehensive knowledge of the research subject of the thesis, including the ability to critically review the relevant literature*

**3. COURSE CONTENT**

The research objectives and the content of each postgraduate thesis should be relevant to the subject matter of the MSc, and should fall within a knowledge area or areas of knowledge.

Research methods refer to techniques for collecting and processing reliable data, but also to their documentation with scientific methods (e.g. field research, literature review, statistical analysis, etc.).

**4. TEACHING and LEARNING METHODS - EVALUATION**

| | |
|---|---|
| **METHOD OF DELIVERY** | During the semester of the dissertation, the supervisor supports the student by providing the best possible guidance, using his/her scientific knowledge and experience in the subject of the specific dissertation, in order to facilitate the student's gradual progress in writing the dissertation. |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES** | Support for the learning process through the e-class platform |
| **ORGANISATION OF TEACHING** | More specifically, the course workload is broken down as follows: |

| **Kind of** | **Description** | **Load (hours)** |
|---|---|---|

| | | | |
|---|---|---|---|
| | Course attendance | It concerns the lectures and presentations that will take place in two-hour sessions. | 2*6=12 |
| | Preparation of a MPE proposal | It concerns the preparation of the proposal for the M.Sc. | 20 |
| | Study at home | It concerns the study time required independently by each student | 22 |
| | Preparation of work | This refers to the time required for case studies and the implementation of exercises, as mentioned above (Assessment Method) | 550 |
| | Final examination | It concerns the duration of the final examination | 1 |
| | Participation in other activities | Meetings with the Teacher to receive progress information (feedback) | 3 |
| | | **Total** | **600** |

| | |
|---|---|
| **STUDENT ASSESSMENT** | *The MPA is presented at a public hearing by the student. The thesis is evaluated by the supervisor and two evaluators, who must jointly agree on the final grade of the thesis, which may be the average of their three grades.*<br><br>*The evaluation criteria for the thesis include:*<br><br>• *the importance of the contribution of the specific research to the subject matter of the MSc*<br>• *the clear definition and importance of the research objectives*<br>• *an understanding of the subject matter of the research and the ability to critically review and use the relevant literature*<br>• *understanding of research methodology, proficiency in research methodology and systematic use of appropriate research techniques*<br>• *the degree of completion of the research and the significance of the results - conclusions*<br>• *the writing style of the thesis and the technical presentation of the work, which must be in accordance with citation style of references.*<br>• *the presentation and public support of the thesis.* |
| **5. RECOMMENDED-BIBLIOGRAPHY** | |
| *Suggested Bibliography:* | • *Calabrese R. L. (2012), Getting It Right: The Essential Elements of a Dissertation, 2nd Edition, Rowman & Littlefield Education.* |

| | |
|---|---|
| | • *Cohen L., Manion L., Morrison K. (2007), Research Methods in Education, 6th Edition, London & New York, Routledge.*<br>• *Murray R. (2006), How to Write a Thesis, 2nd Edition, Berkshire, UK, Open University Press.*<br>• *Orna E. & Stevens G. (2009), Managing Information for Research: practical help in researching, writing and designing dissertations, 2nd Edition, Buckingham, UK, Open University Press.*<br>• *Saunders M., Thornhill M., Lewis, P. (2012), Research Methods for Business Students, 6th Edition, Harlow, Essex, UK, Pearson.*<br>• *Yin R. K. (1994), Case Study Research Design and Methods, 2nd Edition, London & New Delhi, Sage.*<br>• *Bell J. (2007), How to Write a Scientific Paper: A Guide to Research Methodology, Athens, Metaixmio Publications.*<br>• *Eco U. (2001), How a Diploma Thesis is made, Athens, Nisos Publications.*<br>• *Zafeiropoulos K. (2015), How to write a Scientific Paper: scientific research and writing papers, Athens, Kritiki Publications.* |