ACTIVIDAD FORMATIVA/FOCUSED COURSE

Información de la AF	
Título	**2.10 Introducción a QCA**
Programa	**CETIS**
Créditos ECTS	**1 ECTS**
Universidad	**Universidad Pontificia Comillas**
Descriptor	El seminario se orienta al análisis de fenómenos complejos caracterizados por causalidad múltiple, configuracional y no lineal, integrando distintas metodologías complementarias para su estudio Este curso proporciona formación introductoria en Qualitative Comparative Analysis (QCA) y en metodologías complementarias orientadas al análisis de la complejidad causal en investigación social, organizacional y de gestión. A lo largo del seminario se introducen los fundamentos epistemológicos del análisis configuracional, basados en la teoría de conjuntos y la lógica booleana, así como su aplicabilidad en contextos de investigación con muestras pequeñas y medianas (para el caso de QCA). El curso aborda de manera estructurada las distintas fases del proceso analítico en QCA, incluyendo la delimitación del modelo teórico, la calibración de variables y la identificación de condiciones necesarias y suficientes mediante la construcción y análisis de tablas de verdad, considerando aspectos como la diversidad limitada y los distintos tipos de soluciones. Asimismo, se trabajan herramientas para la adecuada representación e interpretación de resultados, incluyendo el uso de tablas estilo Fiss y visualizaciones gráficas avanzadas. El seminario incorpora además una introducción aplicada a técnicas complementarias utilizadas en el análisis de causalidad compleja, tales como Necessary Condition Analysis (NCA), análisis de robustez y la integración de QCA con modelos de ecuaciones estructurales mediante Partial Least Squares Structural Equation Modeling (PLS-SEM).

Profesor(es)	
Nombres	**Noemí Pérez-Macías**
Departmentos	**Gestión Empresarial**
Despacho	**C-407**
e-mail	**nperezmacias@comillas.edu**
Horarios de tutoría	**Solicitud a través de correo electrónico**

Prerrequisitos

En el desarrollo de la acción formativa emplearemos el siguiente software:

- "fsqca", disponible para su descarga en https://sites.socsci.uci.edu/~cragin/fsQCA/software.shtml. Con la descarga se crea una carpeta en la que se encuentra el fichero que ejecuta la aplicación. Por ello, no es necesaria ninguna instalación adicional una vez descargada dicha carpeta.
- "RStudio" que requiere de "R", disponibles para su descarga en https://posit.co/download/rstudio-desktop/. Una vez instalado "RStudio", hay que instalar (Tools-Install Packages) el paquete "SetMethods"y "NCA".

- PLS_SEM- https://www.smartpls.com/pricing (adquiere the student licence- es gratuita)

Es imprescindible que todos los asistentes tengan descargado/instalado el software indicado.

OBJETIVOS DE APRENDIZAJE Y COMPETENCIAS

Este curso contribuirá al desarrollo de las competencias y capacidades:

CB11 Comprensión sistemática de un campo de estudio y dominio de las habilidades y métodos de investigación relacionados con dicho campo.
CB12 Capacidad de concebir, diseñar o crear, poner en práctica y adoptar un proceso sustancial de investigación o creativo.
CB16 Capacidad de fomentar, en contextos académicos y profesionales, el avance científico, tecnológico, social, artístico o cultural dentro de una sociedad basada en el conocimiento
CA02 Encontrar las preguntas clave que hay que responder para resolver un problema complejo.
CA05 Integrar conocimientos, enfrentarse a la complejidad y formular juicios con información limitada.
CB17 Aplicar en el proceso de investigación los estándares y criterios éticos de integridad científica, respeto a la dignidad de las personas y búsqueda de beneficios para la sociedad, en especial, para los más desfavorecidos.

Al finalizar este seminario, se espera que el alumnado:
CM01 Identifique y formule de manera clara, fundamentada y consistente problemas de investigación relevantes tanto desde la perspectiva científico- académica como social.
CM02 Desarrolle el proceso completo de diseño y ejecución de un proyecto de investigación consistentes con el problema de investigación.
CM04 Reporte y difunda resultados fundamentados de investigación

CONTENIDOS

BLOQUE 1. Introductorio a QCA

1. Introducción, ¿por qué emplear Qualitative Comparative Analysis (QCA)?
2. QCA, una aproximación
   - 2.1. Teorías de Conjuntos
   - 2.2. Lógica boleana
   - 2.3. Complejidad causal
3. Fases del análisis con QCA
   - 3.1. Delimitación del modelo
   - 3.2. Calibración
   - 3.3. Identificación de condiciones necesarias (individuales y supersubsets)
   - 3.4. Identificación de condiciones suficientes (creación de la tabla de la verdad; diversidad limitada y tipos de soluciones).
4. Presentación Gráfica de los resultados
   - 4.1. La tabla con estilo de Fiss.
   - 4.2. Enhanced Plot
   - 4.3. Radar Chart
5. Avances en el análisis con QCA
   - 5.1. Enhanced Standard Analysis
   - 5.2. Theory Evaluation
6. Análisis de la Robustez

BLOQUE 2: Métodos Complementarios

1. Necessary Condition Analysis (NCA),
2. cIPMA
3. Análisis integrado de PLS-SEM y QCA

MÉTODOS DE ENSEÑANZA Y APRENDIZAJE

A continuación, se muestran los diferentes métodos de enseñanza propuestos:

ACTIVIDADES REALIZADAS EN EL AULA	COMPETENCIAS
Lecciones magistrales en las que el profesor presentará los contenidos principales de manera clara y estructurada, buscando motivar al estudiante en todo momento mediante el uso de transparencias. **Análisis y resolución de casos** propuestos por el profesor (uso de bases de datos), que permitan aplicar en la práctica los conocimientos teóricos adquiridos.	CB11 Comprensión sistemática de un campo de estudio y dominio de las habilidades y métodos de investigación relacionados con dicho campo. CB12 Capacidad de concebir, diseñar o crear, poner en práctica y adoptar un proceso sustancial de investigación o creativo. CB16 Capacidad de fomentar, en contextos académicos y profesionales, el avance científico, tecnológico, social, artístico o cultural dentro de una sociedad basada en el conocimiento CA02 Encontrar las preguntas clave que hay que responder para resolver un problema complejo. CA05 Integrar conocimientos, enfrentarse a la complejidad y formular juicios con información limitada.

ACTIVIDADES FUERA DEL AULA	COMPETENCIAS
Estudio individual y ampliación de la documentación que el estudiante realiza para comprender, reelaborar y retener un contenido científico con vistas a una posible aplicación en el ámbito de su profesión. **Tutoría académica**, para la resolución de problemas que hayan podido surgir en el transcurso del aprendizaje de la materia o en el proceso de adquisición de las correspondientes competencias. **Resolución individual de caso**. Se proporcionará a los alumnos un dataset. Esta actividad se detallará al estudiantado, durante la sesión**.**	CB11 Comprensión sistemática de un campo de estudio y dominio de las habilidades y métodos de investigación relacionados con dicho campo. CB12 Capacidad de concebir, diseñar o crear, poner en práctica y adoptar un proceso sustancial de investigación o creativo. CB16 Capacidad de fomentar, en contextos académicos y profesionales, el avance científico, tecnológico, social, artístico o cultural dentro de una sociedad basada en el conocimiento CA02 Encontrar las preguntas clave que hay que responder para resolver un problema complejo. CA05 Integrar conocimientos, enfrentarse a la complejidad y formular juicios con información limitada.

METODOS DE EVALUACION

ACTIVIDAD DE EVALUACIÓN	CRITERIO	PESO
Trabajo de análisis. El alumnado deberá aplicar QCA a un conjunto de datos determinado por el profesorado. Aunque la actividad será explicada en clase, deberá incluir, como mínimo: (1) la evaluación de la idoneidad de los datos; (2) la identificación de condiciones necesarias y suficientes; (3) la presentación de los resultados siguiendo el estilo de Fiss; (4) la visualización de los resultados mediante uno de los gráficos explicados en clase; y (5) la interpretación de los resultados obtenidos, y (6) la aplicación de alguna técnica complementaria trabajada durante el curso, incluyendo la construcción básica de un modelo en PLS-SEM	Los estudiantes recibirán una calificación de 0 a 10. Las calificaciones superiores a 5 serán consideradas como “Apto” y se registrarán en el registro individualizado de actividades del estudiante.	100%

La no asistencia al 75% de las horas presenciales supone un no apto. Las AF solo tienen una convocatoria. Si no se superan se deberá tomar el curso siguiente.

El uso de ChatGPT u otras herramientas de inteligencia artificial generativa (IAG) está expresamente prohibido durante la realización de este seminario para todas y cada una de las actividades. Solo se podrá emplear para la mejora en la redacción en el documento de entrega final.
El uso indebido de estas herramientas será considerado una falta grave, de acuerdo con lo establecido en el Reglamento General de la Universidad (art. 168.2.e), como «la realización de acciones encaminadas a falsear o defraudar los sistemas de evaluación del rendimiento académico».
Las consecuencias podrán incluir la expulsión temporal de hasta tres meses, así como la calificación de suspenso (0) en la asignatura correspondiente.

RESUMEN DEL TRABAJO DEL ESTUDIANTE		
HORAS PRESENCIALES		
CLASES MAGISTRALES	**EJERCICIOS Y OTRAS ACTIVIDADES INDIVIDUALES EN EL AULA**	**EXAMEN O TEST**
7 h		
OUT OF CLASS HOURS		
ESTUDIO O TRABAJO INDEPENDIENTE	**TRABAJO EN GRUPO**	
18,5 h		
	CRÉDITOS ECTS :	**1 ECTS**

RECURSOS DE APRENDIZAJE

Básica

Dul, J. (2021). Advances in Necessary Condition Analysis. https://bookdown.org/ncabook/advanced_nca2/.
Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer international publishing.
Medina, I., Castillo, P.J., Álamos-Concha, P. and Rihoux, B. (2017). Análisis Cualitativo Comparado (QCA). Cuadernos Metodológicos. Centro de Investigaciones Sociológicas. Madrid.
Oana, I-E., Schneider, C.Q. & Thomann, E. (2021). Qualitative Comparative Analysis (QCA) Using R: A Beguinner`s Guide. Cambridge University Press.

Recomendada

Ding, H. (2022). What kinds of countries have better innovation performance?–A country-level fsQCA and NCA study. Journal of Innovation & Knowledge, 7(4), 100215.
Greckhamer, T., Furnari, S., Fiss, P.C. & Aguilera, R.V. (2018). Studying configurations with qualitative comparative analysis: Best practices in strategy and organization research. Strategic Organization, 16 (4), 482-495.
Greckhamer, T., Misangyi, V.F. & Fiss, P.C. (2013). The two QCAs: from a small-N to a large-N set theoretic approach. Configurational Theory and Methods in Organizational Research. Research in Sociology of Organizations, 38, 49-75.
Henseler, J. (2018). Partial least squares path modeling: Quo vadis? Quality & Quantity, 52(1), 1–8. https://doi.org/10.1007/s11135-018-0689-6
Henseler, J. (2021). Composite-based Structural Equation Modeling: Analyzing Latent and Emergent Variables. The Guilford Press.
Henseler, J., Müller, T., & Schuberth, F. (2018). New Guidelines for the Use of PLS Path Modeling in Hospitality, Travel, and Tourism Research. In Applying Partial Least Squares in Tourism and Hospitality Research (pp. 17–33). Emerald Publishing Limited. https://doi.org/10.1108/978-1-78756-699-620181002
Meuer, J. & Fiss, P.C. (2020). Qualitative Comparative Analysis in Business and Management. Oxford Research Encyclopedia, Business and Management, 1-25.
Mikalef, P., & Pateli, A. (2017). Information technology-enabled dynamic capabilities and their indirect effect

on competitive performance: Findings from PLS-SEM and fsQCA. Journal of Business Research, 70, 1-16.
Oana, I-E. & Schenider, C.R. (2021). A Robustness Test Protoccol for Applied QCA: Theory and R Software Application. Social Methods & Research, 1-32.
Rasoolimanesh, S. M., Ringle, C. M., Sarstedt, M., & Olya, H. (2021). The combined use of symmetric and asymmetric approaches: partial least squares-structural equation modeling and fuzzy-set qualitative comparative analysis. International Journal of Contemporary Hospitality Management, 33(5), 1571-1592
Schneider, C.Q. & Wagemann, C. (2012). Set-theoretic methods for the social sciences. A guide to qualitative comparative analysis. Cambridge University Press
Wagemann, C., Buche, J. & Siewert, M.B. (2016). QCA and business research: Work in progress or a consolidated agenda? Journal of Business Research, 69, 2531-2540.
Woodside, A.G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. Journal of Business Research, 66, 463–472
Woodside, A.G. (2014). Embrace•perform•model: Complexity theory, contrarian case analysis, and multiple realities. Journal of Business Research, 67, 2495–2503.
Woodside, A.G. (2016). The good practices manifesto: Overcoming bad practices pervasive in current research in business. Journal of Business Research, 69, 365–381
Zhao, J. & Yan, C. (2020). User Acceptance of Information. Feed Advertising: A Hybrid Method Based on SEM and QCA. Future Internet, 12, 2-17.

COURSE INFORMATION	
Title	**2.10 Introduction to QCA**
Program	**CETIS PHD**
ECTS Credits	**1 ECTS**
University	**Comillas University**
Descriptor	This seminar focuses on the analysis of complex phenomena characterized by multiple, configurational, and non-linear causality, integrating different complementary methodologies for their study. This course provides introductory training in Qualitative Comparative Analysis (QCA) and complementary methodologies aimed at analyzing causal complexity in social, organizational, and management research. Throughout the seminar, students are introduced to the epistemological foundations of configurational analysis, based on set theory and Boolean logic, as well as its applicability in research contexts involving small and medium sample sizes (in the case of QCA). The course systematically covers the different stages of the QCA analytical process, including theoretical model specification, variable calibration, and the identification of necessary and sufficient conditions through the construction and analysis of truth tables, while considering issues such as limited diversity and different types of solutions. In addition, the course addresses tools for the appropriate representation and interpretation of results, including the use of Fiss-style tables and advanced graphical visualizations. The seminar also includes an applied introduction to complementary techniques used in the analysis of complex causality, such as Necessary Condition Analysis (NCA), robustness analysis, and the integration of QCA with structural equation models through Partial Least Squares Structural Equation Modeling (PLS-SEM).

TEACHERS	
Name	**Noemí Pérez-Macías**
Department	**Business Management**
Office	**C-407**
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Tutorials	**Upon request by email**

Prerequisites
During the course, the following software will be used: • "fsQCA", available for download at https://sites.socsci.uci.edu/~cragin/fsQCA/software.shtml. Once downloaded, a folder containing the executable application file will be created. Therefore, no additional installation is required after downloading the folder. • "RStudio", which requires "R", both available for download at https://posit.co/download/rstudio-desktop/. Once "RStudio" has been installed, students must install (Tools → Install Packages) the packages "SetMethods" and "NCA". • "PLS-SEM" software. https://www.smartpls.com/pricing (acquire the student license- it is free) It is mandatory for all participants to have the required software downloaded and installed prior to the seminar

LEARNING GOALS

This course will contribute to the development of the following competencies and skills:

CB11 Systematic understanding of a field of study and mastery of the research skills and methods associated with that field.
CB12 Ability to conceive, design or create, implement, and adopt a substantial research or creative process.
CB16 Ability to promote, in academic and professional contexts, scientific, technological, social, artistic, or cultural advancement within a knowledge-based society.
CA02 Ability to identify the key questions that must be addressed in order to solve a complex problem.
CA05 Ability to integrate knowledge, deal with complexity, and formulate judgments with limited information.
CB17 Ability to apply ethical standards and criteria in the research process, including scientific integrity, respect for human dignity, and the pursuit of benefits for society, especially for the most disadvantaged.

By the end of this seminar, students are expected to:

CM01 Identify and formulate, in a clear, well-reasoned, and consistent manner, research questions that are relevant from both scientific-academic and social perspectives.
CM02 Develop the complete process of designing and carrying out a research project consistent with the research question.
CM04 Report and disseminate well-founded research results

CONTENTS

BLOCK 1. Introduction to QCA

1. Introduction: Why use Qualitative Comparative Analysis (QCA)?
2. QCA: An Overview
   2.1. Set Theory
   2.2. Boolean Logic
   2.3. Causal Complexity
3. Stages of QCA Analysis
   3.1. Model Specification
   3.2. Calibration
   3.3. Identification of Necessary Conditions (individual and superset conditions)
   3.4. Identification of Sufficient Conditions (truth table construction, limited diversity, and types of solutions)
4. Graphical Representation of Results
   4.1. Fiss-style Tables
   4.2. Enhanced Plot
   4.3. Radar Chart
5. Advances in QCA Analysis
   5.1. Enhanced Standard Analysis
   5.2. Theory Evaluation
6. Robustness Analysis

BLOCK 2. Complementary Methods

1. Necessary Condition Analysis (NCA)
2. cIPMA
3. Integrated Analysis Using PLS-SEM and QCA

LEARNING AND TEACHING METHOD

The following are the different teaching methods proposed:

CLASS-BASED ACTIVITIES	COMPETENCIES
Lectures in which the instructor will present the main content in a clear and structured manner, seeking to engage students throughout the session through the use of slides. **Interactive lecture sessions.** Each lecture will combine instruction with debate and/or discussion on the topic covered in that class. **Analysis and resolution of cases** proposed by the professor (using databases), allowing students to apply the theoretical knowledge they have acquired in practice.	CB11 Systematic understanding of a field of study and mastery of the research skills and methods associated with that field. CB12 Ability to conceive, design or create, implement, and adopt a substantial research or creative process. CB16 Ability to promote, in academic and professional contexts, scientific, technological, social, artistic, or cultural advancement within a knowledge-based society. CA02 Ability to identify the key questions that must be addressed in order to solve a complex problem. CA05 Ability to integrate knowledge, deal with complexity, and formulate judgments with limited information. CB17 Ability to apply ethical standards and criteria in the research process, including scientific integrity, respect for human dignity, and the pursuit of benefits for society, especially for the most disadvantaged.
OUT OF CLASS ACTIVITIES	**COMPETENCIES**
Independent study and expansion of the documentation the student prepares to understand, rework, and retain scientific content with a view to its potential application in their professional field. **Academic tutoring** to resolve any issues that may have arisen during the course of learning the subject matter or in the process of acquiring the relevant skills. **Individual task completion.** Students will be provided with a dataset. This activity will be explained to the students during the session.	CB11 Systematic understanding of a field of study and mastery of the research skills and methods associated with that field. CB12 Ability to conceive, design or create, implement, and adopt a substantial research or creative process. CB16 Ability to promote, in academic and professional contexts, scientific, technological, social, artistic, or cultural advancement within a knowledge-based society. CA02 Ability to identify the key questions that must be addressed in order to solve a complex problem. CA05 Ability to integrate knowledge, deal with complexity, and formulate judgments with limited information. CB17 Ability to apply ethical standards and criteria in the research process, including scientific integrity, respect for human dignity, and the pursuit of benefits for society, especially for the most disadvantaged.

ASSESSMENTS AND ASSESSMENT CRITERIA

ASSESSMENT ACTIVITIES	CRITERIA	WEIGHT
To pass the course, students must attend at least 75% of the in-person sessions. Analysis assignment. Students will be required to apply QCA to a dataset provided by the instructor. Although the activity will be explained during class, the assignment must include, at a minimum: (1) an assessment of the suitability of the data; (2) the identification of necessary and sufficient conditions; (3) the presentation of results following the Fiss-style format; (4) the visualization of results using one of the graphical techniques discussed in class; (5) the interpretation of the results obtained; and (6) the application of at least one complementary technique covered during the course, including the basic construction of a PLS-SEM model.	Students will receive a grade on a scale of 0 to 10. Grades above 5 will be considered "Pass" and will be recorded in the student's individual activity log.	100%

Non-attendance to 75% of the lectures/workshops will imply a non-pass. Students will have to take the AF again the following year, as there is only one sitting.

The use of ChatGPT or any other generative artificial intelligence (GAI) tools is expressly prohibited throughout this seminar for all activities and assignments. Such tools may only be used for improving the writing and language quality of the final submission document.
The misuse of these tools will be considered a serious offense, in accordance with the provisions of the University's General Regulations (Art. 168.2.e), as "the performance of actions aimed at falsifying or defrauding academic performance evaluation systems."
Consequences may include temporary suspension for up to three months, as well as a failing grade (0) in the corresponding course.

The AI Assessment Scale

1	NO AI	The assessment is completed entirely without AI assistance in a controlled environment, ensuring that students rely solely on their existing knowledge, understanding, and skills **You must not use AI at any point during the assessment. You must demonstrate your core skills and knowledge.**
2	AI PLANNING	AI may be used for pre-task activities such as brainstorming, outlining and initial research. This level focuses on the effective use of AI for planning, synthesis, and ideation, but assessments should emphasise the ability to develop and refine these ideas independently. **You may use AI for planning, idea development, and research. Your final submission should show how you have developed and refined these ideas.**
3	AI COLLABORATION	AI may be used to help complete the task, including idea generation, drafting, feedback, and refinement. Students should critically evaluate and modify the AI suggested outputs, demonstrating their understanding. **You may use AI to assist with specific tasks such as drafting text, refining and evaluating your work. You must critically evaluate and modify any AI-generated content you use.**
4	FULL AI	AI may be used to complete any elements of the task, with students directing AI to achieve the assessment goals. Assessments at this level may also require engagement with AI to achieve goals and solve problems. **You may use AI extensively throughout your work either as you wish, or as specifically directed in your assessment. Focus on directing AI to achieve your goals while demonstrating your critical thinking.**
5	AI EXPLORATION	AI is used creatively to enhance problem-solving, generate novel insights, or develop innovative solutions to solve problems. Students and educators co-design assessments to explore unique AI applications within the field of study. **You should use AI creatively to solve the task, potentially co-designing new approaches with your instructor.**

SUMMARY OF STUDENT WORKLOAD		
CLASS BASED HOURS		
LECTURES	ACTIVITY BASED	TESTS
7 h		
OUT OF CLASS HOURS		
INDEPENDENT STUDY/WORK	GROUP WORK	
18,3 h		
	ECTS CREDITS:	1 ECTS

RESOURCES

Basic:

Dul, J. (2021). Advances in Necessary Condition Analysis. https://bookdown.org/ncabook/advanced_nca2/.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer international publishing.

Medina, I., Castillo, P.J., Álamos-Concha, P. and Rihoux, B. (2017). Análisis Cualitativo Comparado (QCA). Cuadernos Metodológicos. Centro de Investigaciones Sociológicas. Madrid.

Oana, I-E., Schneider, C.Q. & Thomann, E. (2021). Qualitative Comparative Analysis (QCA) Using R: A Beguinner`s Guide. Cambridge University Press.

Recomendeded:

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Rasoolimanesh, S. M., Ringle, C. M., Sarstedt, M., & Olya, H. (2021). The combined use of symmetric and asymmetric approaches: partial least squares-structural equation modeling and fuzzy-set qualitative comparative analysis. International Journal of Contemporary Hospitality Management, 33(5), 1571-1592

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Woodside, A.G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. Journal of Business Research, 66, 463–472

Woodside, A.G. (2014). Embrace•perform•model: Complexity theory, contrarian case analysis, and multiple realities. Journal of Business Research, 67, 2495–2503.

Woodside, A.G. (2016). The good practices manifesto: Overcoming bad practices pervasive in current research in business. Journal of Business Research, 69, 365–381

Zhao, J. & Yan, C. (2020). User Acceptance of Information. Feed Advertising: A Hybrid Method Based on SEM and QCA. Future Internet, 12, 2-17.