

**COURSE DATA****Data Subject**

Code	44079
Name	Mathematical analysis and applications
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2024 - 2025

Study (s)

Degree	Center	Acad. Period	year
2183 - Master's Degree in Mathematical Research	Faculty of Mathematics	1	Second term

Subject-matter

Degree	Subject-matter	Character
2183 - Master's Degree in Mathematical Research	4 - Specialty in fundamental mathematics	Optional

Coordination

Name	Department
MAZON RUIZ, JOSE M	15 - Mathematical Analysis

SUMMARY**PREVIOUS KNOWLEDGE****Relationship to other subjects of the same degree**

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

The student must know the basic integration tools in one and several variables.

**2183 - Master's Degree in Mathematical Research**

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Capacidad de integrar conocimientos y formular juicios.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Que los estudiantes comprendan los conceptos y las demostraciones rigurosas de teoremas fundamentales de alguna de las áreas específicas de las Matemáticas.
- Que los estudiantes sean capaces de aplicar los resultados y técnicas aprendidas para la resolución de problemas complejos de alguna de las áreas de las Matemáticas, en contextos académicos o profesionales.
- Que los estudiantes tengan capacidad para elaborar y desarrollar razonamientos lógico-matemáticos e identificar errores en razonamientos incorrectos.
- Que los estudiantes posean la capacidad para enunciar y verificar proposiciones en alguna de las áreas de las Matemáticas y para transmitir los conocimientos matemáticos adquiridos, oralmente y por escrito.
- Que los estudiantes sean capaces de comprender de manera autónoma artículos de investigación o innovación en alguna de las áreas de las Matemáticas.

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ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Development of individual work	15,00	0
Study and independent work	15,00	0
Readings supplementary material	5,00	0
Preparing lectures	5,00	0
Preparation of practical classes and problem	5,00	0
TOTAL	75,00	



TEACHING METHODOLOGY

EVALUATION

English version is not available

REFERENCES

Basic

- Referencia b1: H. Brezis, Functional Analysis, Sobolev Spaces and Partial Differential Equations. Universitext, Springer, 2010.
- Referencia b2: L. C. Evans, Partial Differential Equations.} Graduate Studies in Math. Vol 19, Amer. Math. Soc 1998
- Referencia b3: S. Kesavan, Topics in Functional Analysis and Applications. John Wiley and Sons, 1989.
- Referencia b4: J.M. Mazón, Elementos de Análisis Funcional. Amazon, 2021.
- Referencia b5: W. P. Ziemer, Weakly Differentiable Functions. Springer-Verlag, 1989.

Additional

- Referencia c1: C. Bennet, R, Sharpley, Interpolation of operators. Academic Press. 1988.
- Referencia c2: I. Daubechies, Ten Lectures on Wavelets. SIAM, 1999.
- Referencia c3: J.M. Mazón, Elementos de Análisis Funcional. Independently published, 2021.