

Graduate Program in Mathematics

University of Puerto Rico, Río Piedras Campus

Graduate studies at the University of Puerto Rico, Río Piedras

The University of Puerto Rico, Río Piedras

- *Is a Comprehensive University with High Research Activity*
- Is accredited by the Middle States Association of Colleges and Schools
- Provides an international cultural experience in a tropical climate
- Has exchange programs with national and international universities
- Offers graduate support from university, private, and government funds, including NASA, NIH, NSF, DOE, EPA and other agencies
- Has competitive tuition costs, compared to other USA institutions

Graduate degrees in Mathematics at UPR-RP

The Department of Mathematics at UPR-RP offers graduate programs leading to the **Master of Science** and **Doctor of Philosophy degrees in Mathematics**. The **M.S. Program** has options in Pure Mathematics and Applied Mathematics. The **Ph.D. Program** has specializations in Pure Mathematics, Discrete Mathematics, and Computational Mathematics & Statistics. Mathematics professors possess advanced degrees from prestigious universities around the world and many publish regularly in internationally recognized research journals and participate in exchange programs with institutions all over the world. The relatively small size of the graduate classes offer individualized attention and is very favorable to establish common research interests with faculty members.

Careers in Mathematics

Graduates will qualify for a broad range of careers in academia, business, industry, and government, including: professor, research mathematician and scientist, statistician, computer analyst, forensics analyst, climate analyst, banker, actuary, cryptanalyst, quantitative analyst, public utilities analyst, among others.

Research Areas in the Mathematics Graduate Program at UPR-RP

Mathematical Analysis, Discrete Mathematics, Computational Mathematics and Statistics are the main research areas of interest in the M.S. and Ph.D. Programs in Mathematics. Research seminars are held regularly in these areas.

In Mathematical Analysis, research covers functional analysis, especially operator algebras, classification of C^* -algebras, non-commutative geometry, operator theory, semigroups of operators, as well as partial differential equations and potential theory.

Researchers in Discrete Mathematics study broad areas of that subject: graph theory, combinatorics, coding theory, finite geometries, aspects of number theory, and related applications.

The Computational Mathematics and Statistics area is concerned with problems of applied mathematics, Bayesian statistics, biostatistics, numerical analysis, stochastic differential equations, mathematical modeling, mathematical biology, and information theory.

The core courses in the Applied Mathematics option of the Master’s Program now include a hybrid version (prepared in collaboration with the Department of Computer Science) combining classroom activities with online work. This is a result of the Title V project coordinated by the Deanship of Graduate Studies and Research. For more information, contact the Department of Mathematics or the DEGI (Deanship of Graduate Studies and Research).

Research Faculty in the Mathematics Graduate Program and their Research Areas of Interest

The Department of Mathematics has a permanent faculty of 26 tenured or tenure-track members. The faculty members who are actively engaged in the following research areas include:

Algebra and Number Theory:

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| <i>Francis N. Castro, Professor</i> | Algebraic Geometry; Number Theory; Coding Theory. |
| <i>Italo J. Dejter, Professor</i> | Graph Theory; Combinatorial Designs; Error-correcting Codes; Algebraic Combinatorics, Algebraic and Differential Topology. |
| <i>M. Reza Emamy-K, Professor</i> | Convex and Discrete Geometry; Combinatorics. |
| <i>Raúl Figueroa, Professor</i> | Combinatorics; Finite Geometries; Algebraic Geometry. |
| <i>Heeralal Janwa, Professor</i> | Coding Theory; Cryptography; Algebraic Geometry; Information Theory. |
| <i>Alexander K. Kelmans, Professor</i> | Graph Theory; Matroid Theory; Combinatorial Optimization; Algorithm Complexity, Linear Algebra and Combinatorics, Random Structures. |
| <i>Luis A. Medina, Assistant Professor</i> | Discrete and Experimental Mathematics; Number Theory. |

Functional Analysis and Operator Theory:

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| <i>Guihua Gong, Professor</i> | Functional Analysis; Index Theory; Global Analysis; Noncommutative Differential Geometry |
| <i>Valentin Keyantuo, Professor</i> | Semigroups of Linear Operators; Partial Differential Equations. |
| <i>Liangqing Li, Professor</i> | Functional Analysis; Operator Algebras |
| <i>Lin Shan, Assistant Professor</i> | Functional Analysis; Operator Algebras; Index Theory; Coarse Geometry; Geometric Analysis. |
| <i>Mahamadi Warma, Associate Professor</i> | Partial Differential Equations; Linear and nonlinear Potential Theory; Semigroups of Operators. |

Discrete Mathematics, Combinatorics:

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| <i>Francis N. Castro, Professor</i> | Algebraic Geometry; Number Theory; Coding Theory. |
| <i>Italo J. Dejter, Professor</i> | Graph Theory; Combinatorial Designs; Error-correcting Codes; Algebraic Combinatorics, Algebraic and Differential Topology. |
| <i>M. Reza Emamy-K, Professor</i> | Convex and Discrete Geometry; Combinatorics. |
| <i>Raúl Figueroa, Professor</i> | Combinatorics; Finite Geometries; Algebraic Geometry. |
| <i>Puhua Guan, Professor</i> | Combinatorics; Symbolic computation; Hypercube Structure. |
| <i>Heeralal Janwa, Professor</i> | Coding Theory; Cryptography; Algebraic Geometry; Information Theory. |
| <i>Alexander K. Kelmans, Professor</i> | Graph Theory; Matroid Theory; Combinatorial Optimization; Algorithm Complexity, Linear Algebra and Combinatorics, Random Structures. |
| <i>Luis A. Medina, Assistant Professor</i> | Discrete and Experimental Mathematics; Number Theory. |

Geometry and Topology:

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| <i>Italo J. Dejter, Professor</i> | Graph Theory; Combinatorial Designs; Error-correcting Codes; Algebraic Combinatorics, Algebraic and Differential Topology. |
| <i>M. Reza Emamy-K, Professor</i> | Convex and Discrete Geometry; Combinatorics. |
| <i>Guihua Gong, Professor</i> | Functional Analysis; Index Theory; Global Analysis; Noncommutative Differential Geometry |
| <i>Lin Shan, Assistant Professor</i> | Functional Analysis; Operator Algebras; Index Theory; Coarse Geometry; Geometric Analysis. |

Partial Differential Equations

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| <i>Valentín Keyantuo, Professor</i> | Semigroups of Linear Operators; Partial Differential Equations. |
| <i>Mahamadi Warma, Associate Professor</i> | Partial Differential Equations; Linear and nonlinear Potential Theory; Semigroups of Operators. |

Computational Mathematics:

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| <i>Heeralal Janwa, Professor</i> | Coding Theory; Cryptography; Algebraic Geometry; Information Theory. |
| <i>Mariano Marcano, Professor (Department of Computer Science)</i> | Mathematical Biology. |
| <i>Son Luu Nguyen, Assistant Professor</i> | Numerical Analysis, Stochastic Differential Equations, Stochastic Games and Stochastic Optimal Control |
| <i>María Eglée Pérez, Associate Professor</i> | Bayesian Statistics; Biostatistics. |
| <i>Luis Raúl Pericchi, Professor</i> | Mathematical Statistics; Applications of Bayesian Statistics; Computational Statistics. Statistics in Medicine. |

Optimization, Mathematical Modeling:

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| <i>M. Reza Emamy-K, Professor</i> | Convex and Discrete Geometry; Combinatorics. |
| <i>Alexander K. Kelmans, Professor</i> | Graph Theory; Matroid Theory; Combinatorial Optimization; Algorithm Complexity, Matrix Theory and Combinatorics, Random Structures. |
| <i>Mariano Marcano, Professor (Department of Computer Science)</i> | Mathematical Biology. |
| <i>Son Luu Nguyen, Assistant Professor</i> | Numerical Analysis, Stochastic Differential Equations, Stochastic Games and Stochastic Optimal Control |

Probability and Statistics:

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| <i>Alexander K. Kelmans, Professor</i> | Graph Theory; Matroid Theory; Combinatorial Optimization; Algorithm Complexity, Matrix Theory and Combinatorics, Random Structures. |
| <i>Son Luu Nguyen, Assistant Professor</i> | Numerical Analysis, Stochastic Differential Equations, Stochastic Games and Stochastic Optimal Control, Mathematical Finance. |
| <i>María Eglée Pérez, Associate Professor</i> | Bayesian Statistics; Biostatistics. |
| <i>Luis Raúl Pericchi, Professor</i> | Mathematical Statistics; Applications of Bayesian Statistics; Computational Statistics. Statistics in Medicine. |

To find out more about our faculty (e-mail, phone numbers, short biographies, research interests and list of publications) visit the Department website at: <http://math.uprrp.edu/>

Research Facilities

The Center for Information Technology houses the library, which has an excellent supply of books and research journals in all areas of Mathematics. It also offers up-to-date computing facilities. The center is structured in a way that optimizes the use of information technology to provide relevant services to students, faculty, and researchers.

Financial Aid

Students accepted in the graduate program usually receive financial aid in the form of teaching assistantships, research assistantships, and fellowships; those receiving teaching assistantships receive a tuition waiver. In addition, the university provides funds to support students' participation in meetings, workshops, and short courses. Students interested in applying to the graduate program are encouraged to contact faculty members with whom they share research interests to explore additional funding opportunities.

Puerto Rico, Island of Enchantment

From east to west the island of Puerto Rico measures about 100 miles and from north to south about 35 miles. The dominant language is Spanish, but most people speak English. The metropolitan area is served by a public bus transit system and a new train system called Tren Urbano, which has a station at UPR-RP. The town of Río Piedras, where the university is located, is known for its large marketplace, in which fresh fruits and vegetables are sold and authentic food is available at remarkably low price. Affordable housing is also available in the town.

About the university

The University of Puerto Rico, Río Piedras Campus is located in the metropolitan area of San Juan, occupying 289 acres in the community of Río Piedras. Founded in 1903 and characterized by its lush tropical vegetation and Spanish-style architecture, the Río Piedras Campus is the oldest and largest of the eleven campuses that form the University of Puerto Rico system. A land-grant university, UPR-RP offers a variety of academic programs to its approximately 15,000 students—3,600 of which are graduate students.

Students come from a variety of backgrounds and places, including Puerto Rico, the Caribbean, the US, China, Latin America—Argentina, Perú, Colombia, Costa Rica, Mexico and Venezuela—and other countries of the world.

Find out more about applying to the Graduate Programs in Mathematics at UPR-RP

For more information about graduate programs at the University of Puerto Rico-Río Piedras Campus, visit the Office of the Dean of Graduate Studies and Research (DEGI) Web site:
http: graduados.uprrp.edu; <http://graduados.uprrp.edu>

For admission requirements and procedures, visit: <http://graduados.uprrp.edu/admisiones/>

Also visit: <http://math.uprrp.edu/> for information specific to the Mathematics Graduate Program.

Contact:

For questions about the Graduate Programs in Mathematics at UPR-RP, contact:

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