

# **graduate COMMITTEE curriculum PROPOSAL FORM**

## A. Cover page (rover over text for more instructions)

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| A.1[. Course or program](#_acknowledge) | **Master of Arts in MathematicaL Studies** |  |
| Academic Unit | Faculty of Arts and Sciences  |  |
| A.2. [Proposal type](#type) | Program revision  |  |
| A.3. [Originator](#Originator) | Leonardo Pinheiro, Lisa Humphreys  | [Home department](#home_dept) | Mathematical Sciences |
| A.4. [Rationale](#Rationale)Additional Information for [new programs](#type) | The Mathematical Studies M.A. is designed to be a flexible and accessible graduate program exposing students of various backgrounds to a spectrum of mathematical content from pure to applied mathematics including related subjects such as Economics, Finance, and Computer Science. In order to accomplish these goals, the program relies on rolling enrollment and course offerings without pre-requisites beyond an undergraduate degree in mathematics. This model allows for all students – regardless of cohort - to be enrolled in the same courses in a particular semester. This facilitates advising and maintains a cost-effective use of faculty resources. The Department of Mathematical Sciences also offers a yearly summer graduate course that attracts students from outside of RIC increasing the visibility and reach of our program.In order to accomplish the aforementioned objectives, our program has relied heavily on a 2-year rotation of 5 topics courses: Linear Algebra, Combinatorics, Differential Equations, Calculus Revisited, and Mathematical Modeling). These courses are now very well stablished and include both core content (Linear Algebra and Combinatorics) as well important applied topics (Differential Equations, Mathematical Modeling, and Calculus Revisited). We also make judicious use of selected 400-level courses to allow our students to experience topics in Economics, Computer Science, Finance and upper-level Mathematics which they may not have been exposed to as undergraduate students. With this in view, we are proposing the following changes to MA in Mathematical Studies:1. Change the program requirement language to use the term "courses" instead of "credits" to describe most requirements for the program. This will allow for better formulation of plans of studies involving 400-level course. The program still consists of a minimum of 30 credit hours. 2. Removal of Concentrations. These have never appeared on transcript and effectively do not change a plan of study.3. Change to the list of core classes. This will eliminate the somewhat artificial used of topics courses and course substitutions to better reflect current course offerings and advising. There is no actual change in the number of required core content courses, we are simply giving 5 courses permanent numbers (see accompanying course creation proposals). |
| A.5. [Student impact](#student_impact) | Easier, clearer, and more streamlined advising.  |
| A.6. [Impact on other programs](#impact) | None.  |
| A.7. [Resource impact](#Resource) | [Faculty PT & FT](#faculty" \o "Need to hire new full-time or part-time faculty? This is where you indicate if this proposal will be affecting FLH in your department/program.):  | These changes will allow for the continued efficient use of faculty resources. There will be no change in faculty load hours assigned to graduate courses.  |
|  | [Library:](#library) | None |
|  | [Technology](#technology) | None |
|  | [Facilities](#facilities): | None |
| A.8. [Semester effective](#Semester_effective) | Fall 2022 | A.9. [Rationale if sooner than next Fall](#Semester_effective) |  |

C. [Program Proposals](#program_proposals)

|  | [Old (for revisions only)](#old_program) | New/revised |
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| C.1. [Enrollments](#enrollments) |  |  |
| C.2. [Admission requirements](#admissions) |  |  |
| C.3. [Retention requirements](#retention) |  |  |
| C.4. [Course requirements](#course_reqs) for each program option | COURSE REQUIREMENTSCHOOSE concentration A or B belowA. MATHEMATICSFOUR COURSES fromMATH 512 Foundations of Higher Analysis MATH 515 Introduction to Complex VariablesMATH 519 Set Theory MATH 532 Algebraic Structures MATH 551 Topics in Proof FOUR ADDITIONAL COURSES in mathematics for a minimum of 12 credits, chosen with advisor’s consent.TWO COURSES in a discipline approved by advisor and department for a minimum of 6 credits.Comprehensive ExaminationB. MATHEMATICS FOR THE PROFESSIONSTHREE COURSES fromMATH 512 Foundations of Higher AnalysisMATH 515 Introduction to Complex Variables MATH 519 Set Theory MATH 532 Algebraic Structures MATH 551 Topics in Proof THREE ADDITIONAL COURSES in mathematics for a minimum of 9 credits, chosen with advisor’s consentFOUR COURSES in mathematics or a related discipline such as accounting, economics, finance, mathematics education, or pedagogy, for a total of 12 credits, chosen with advisor’s consent. | CORE COURSES (all 3 credits)M551 Topics in Proof M512 Foundations of Higher Analysis M515 Introduction to Complex variables M519 Set Theory M528 Topology M530 Advanced in Linear Algebra M522 Combinatorics Course Requirements:THREE core courses chosen with Program Director's consent. 9-12 Additional Credits in Mathematics at an appropriate level, chosen with Program Director's consent.9-12 credits in Mathematics OR related disciplines with Program Director's consent. .Choices may include, but are not limited to, course in Mathematics Education, Computer Science, Physics, Financeor Economics. Comprehensive Examination 0  |
| C.5. [Credit count](#credit_count) for each program option | 30 | 30-33 |
| C.6. Requirement for thesis, project, or comprehensive exam  | Comprehensive Examination | Comprehensive Examination |
| C.7. Program Accreditation | N/A |  |
| C.8 [Program goals](file:///Users/sabbotson/Documents/Curriculum/Program%20goals)Needed for all new programs | N/A |  |
| C.9. Other changes if any | NONE |  |
| C.10 [CIP number](file:///Users/leopinheiro/Desktop/GCC/2021_2022%20Proposals/Please#Signature_2) |  |  |

## D. Signatures

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| Name | Position/affiliation | [Signature](#_Signature" \o "Insert electronic signature, if available, in this column) | Date |
| --- | --- | --- | --- |
| Dr. Lisa Humphreys  | Program Director - Mathematical Studies M.A. | Lisa Humphreys  | 03/18/2022 |
| Dr. Rebecca Sparks | Chair of Mathematical Sciences | Rebecca Sparks  | 03/18/2022 |
| Dr. Earl Simson | Dean of Arts and Sciences | Earl Simson | 04/01/2022 |