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# **graduate COMMITTEE curriculum PROPOSAL FORM**

## A. Cover page (rover over text for more instructions- please delete red instructions)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A.1[. Course or program](#_acknowledge) | **MATH 510 Exploring Calculus: Renew, Revisit, Reexamine** | | | | |  |
| Academic Unit | Faculty of Arts and Sciences | | | | |  |
| A.2. [Proposal type](#type) | Course: creation | | | | |  |
| A.3. [Originator](#Originator) | Leonardo Pinheiro. Lisa Humphreys | | [Home department](#home_dept) | | Department of Mathematical Sciences | |
| A.4. [Rationale](#Rationale) | This course should provide students with a deeper understanding and appreciation of calculus beyond the traditional calculus sequence. The class has been taught as a topics course over the years and it is a very popular choice for students in the M.A. program. We often see enrollment from CCRI professors and math teachers in public schools looking for professional development opportunities. | | | | | |
| A.5. [Student impact](#student_impact) | The creation of this course will simplify course selection and 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.): | No change in faculty load hours. | | | | |
|  | [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) | |  | | |
| A.10 [Changes to the website](#Signature_2) | None | | | | | |

## B. NEW OR REVISED COURSES

|  | Old ([for revisions only](#Revisions)) ONLY include information that is being revised, otherwise leave blank | New Examples are provided within some of the boxes for guidance, delete just the examples that do not apply. |
| --- | --- | --- |
| B.1. [Course prefix and number](#cours_title) |  | MATH 510 |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#title) |  | Exploring Calculus: Renew, Revit, Reexamine |
| B.4. [Course description](#description) |  | A deeper analysis of the definitions, concepts and theorems of single variable calculus is presented. Classical and reform approaches are explored. Connections to higher mathematics are examined. |
| B.5. [Prerequisite(s)](#prereqs) |  | Graduate status or consent of department chair |
| B.6. [Offered](#Offered) |  | As needed. |
| B.7. [Contact hours](#contacthours) |  | 3 |
| B.8. [Credit hours](#credits) |  | 3 |
| B.9. [Justify differences if any](#differences) |  | |
| B.10. [Grading system](#grading) | Letter grade | Letter grade |
| B.11. [Instructional methods](#instr_methods) |  | Lecture |
| B.11.a [Delivery Method](#instr_methods) |  | On campus |
| B.12.[Categories](#required) |  | Free elective |
| B.13. [How will student performance be evaluated?](#performance) |  | Attendance | Class participation | Exams |Presentations | Papers | Class Work | | Projects |
| B.14. [Redundancy with, existing courses](#competing) |  | None |
| B. 15. Other changes, if any |  | |

| B.16. [Course learning outcomes](#outcomes): List each outcome in a separate row | [Professional organization standard(s)](#standards), if relevant | [How will each outcome be measured?](#measured) |
| --- | --- | --- |
| Students will understand the statements and proofs of the main theorem of single-variable calculus. |  | See B.13. |
| Students will make connections between the formal results of calculus and their intuitive understanding of the topics. |  | See B.13. |
| Students will understand different approaches to the teaching of calculus including classical and reformed calculus . |  | See B.13. |
| Students will make connections between calculus and other areas of the K-16 curriculum. |  | See B.13. |

| B.17. [Topical outline](#outline): Please do not include a full syllabus |
| --- |
| 1.Formal Definition of a Limit (delta-epsilon)  2.Formal Definition of Continuity  3.The Intermediate Value Theorem  4.Differentiability & Continuity & Limit Connections  5.The Extreme Value Theorem  6.The Mean Value Theorem  7. Formal Definition of the Definite Integral  8. The Fundamental Theorem of Calculus  9. L’Hopital’s Rule  10. Arc Length  11.Volumes of Revolution |

## D. Signatures

##### D.1. Approvals:

##### Required from department chairs, program directors, and deans from the academic unit originating the proposal.

| 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 |