

# **graduate COMMITTEE curriculum PROPOSAL FORM**

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

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| A.1[. Course or program](#_acknowledge) | **HCA 585 Data Mining and Predictive Analytics** |  |
| Academic Unit | School of Business |  |
| A.2. [Proposal type](#type) | Course: creation   |  |
| A.3. [Originator](#Originator) | Marianne RaimondoSankeerth Rampa | [Home department](#home_dept) | Health Care Administration |
| A.4. [Rationale](#Rationale)Additional Information for [new programs](#type) | This new course will serve as a required component of the MS in Health Care Administration - Data Analytics concentration. In an era where healthcare generates vast amounts of data, the ability to harness this information to enhance patient care, streamline operations, and drive informed decision-making is of paramount importance. This course provides a comprehensive exploration of advanced data analytics techniques tailored to the healthcare domain. This course empowers students with the knowledge and skills needed to extract actionable insights from extensive healthcare datasets. Throughout the course, students will explore real-world healthcare applications. Case studies and practical examples will illustrate how data mining and predictive analytics are utilized to drive advancements in patient care, healthcare operations, and administrative decision-making. |
| A.5. [Student impact](#student_impact) | * New course in MS in Health Care Administration - Data analytics concentration.
* Prepares students and health care/IT professionals for in demand jobs with updated skill sets in health care information systems and data analysis.
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| A.6. [Impact on other programs](#impact) | Could serve as a pipeline to MS HCA |
| 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.):  | Full time or adjuncts from CIS |
|  | [Library:](#library) | None |
|  | [Technology](#technology) | None |
|  | [Facilities](#facilities): | None, will use existing classrooms and computer labs  |
| A.8. [Semester effective](#Semester_effective) | Spring 2024 or Fall 2024 | A.9. [Rationale if sooner than next Fall](#Semester_effective) |  |
| A.10 [Changes to the website](#Signature_2) |  |

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| A.10. INSTRUCTIONS FOR CATALOG COPY: This single file copy must include all relevant pages from the college catalog, and show how the catalog will be revised. (1) Go to the “Forms and Information” on the graduate committee’s website <https://www.ric.edu/department-directory/graduate-curriculum-committee/forms-and-information>Scroll down until you see the Word files for the current catalog. (2) Download ALL catalog sections relevant for this proposal, including course descriptions and/or other affected programs. (3) Place ALL relevant catalog copy into a single file. Put page breaks between sections and delete any catalog pages not relevant for this proposal. (4) Using the track changes function, revise the catalog pages to demonstrate what the information should look like in next year’s catalog. (5) Check the revised catalog pages against the proposal, making sure that program totals are correct when adding or deleting course credits. |

## B. NEW OR REVISED COURSES

|  | Old ([for revisions only](#Revisions))ONLY include information that is being revised, otherwise leave blank | NewExamples are provided within some of the boxes for guidance, delete just the examples that do not apply. |
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| B.1. [Course prefix and number](#cours_title)  |  | HCA 585 |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#title)  |  | Data Mining & Predictive Analytics  |
| B.4. [Course description](#description)  |  | Course will explore descriptive data mining and predictive analytic techniques including supervised and unsupervised learning to extract insight from datasets, develop and deploy models to aid in healthcare decision making.   |
| B.5. [Prerequisite(s)](#prereqs) |  | HCA 552 and HCA 580 or permission of program director.  |
| B.6. [Offered](#Offered) |  | Spring |
| 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  |
| B.11. [Instructional methods](#instr_methods) |  | Lecture Computer lab Small group  |
| B.11.a [Delivery Method](#instr_methods) |  | Hybrid |
| B.12.[Categories](#required) |  | Required for program  |
| B.13. [How will student performance be evaluated?](#performance) |  | Attendance Class participation Exams Presentations Projects Papers and/or Case Studies |
| 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 learn the concepts of using descriptive analytics for solving problems and making decisions. | ICABE | Written exams, quizzes, and practical assignments assessing students' understanding of descriptive analytics concepts.  |
| Students will understand the objectives, benefits, and use of data mining.  |  | Written assignments, case studies, and class discussions focusing on the objectives, benefits, and real-world applications of data mining.  |
| Students will gain insight on ethical issues surrounding predictive analytics including privacy.  | ICABE | Assignments, in-class activities, and discussions addressing ethical considerations and privacy concerns in predictive analytics.  |
| Students will learn the main predictive analytics methods and algorithms.  | ICABE | Written exams, practical assignments, and coding exercises assessing students' knowledge of predictive analytics methods and algorithms.  |
| Students will learn the capabilities of reporting, dashboards, and visualizations.  | ICABE | Practical assignments and projects involving the creation of reports, dashboards, and visualizations to communicate predictive analytics results.  |

| B.17. [Topical outline](#outline): Please do not include a full syllabus |
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| 1. Descriptive analytics concepts and definitions
2. Data mining
	1. objectives, benefits
	2. use of data mining
3. Ethical issues surrounding predictive analytics
	1. Ethical obligations, Privacy, De-identification, Consent

 1. Predictive analytics methods and algorithms
	1. Software tools for data mining and predictive analytics
	2. Methods - Classification, regression, and clustering
	3. Algorithms – linear and logistic regression, K-nearest neighbor,             decision trees, ensembles (gradient boosting, random forest),            neural networks, and other algorithms
2. capabilities of reporting, dashboards, and visualizations
	1. Definitions and types of reporting
	2. Types and limitations of and dashboards and visualizations
	3. KPIs (Key Performance Indicators)
	4. Model deployment

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## 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) | Date |
| --- | --- | --- | --- |
| Marianne Raimondo | Program Director of HCA (Health Care Administration) | *Marianne Raimondo MS, MSW, Ph. D* | 11/14/23 |
| Justin Feeney | Chair of Department of Management and Marketing | A signature of a person  Description automatically generated | 11/08/23 |
| Marianne Raimondo | Dean of School of Business | *Marianne Raimondo MS, MSW, Ph. D* | 11/14/23 |

##### D.2. [Acknowledgements](#acknowledge):

##### Required from all departments (and corresponding dean) impacted by the proposal. Signature does not indicate approval. Concerns should be brought to the attention of the graduate committee chair for discussion.

| Name | Position/affiliation | [Signature](#Signature_2) | Date |
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| Suzanne Mello-Stark | Chair of Department of Computer Science and Information Systems |  | 11/15/23 |