# http://www.ric.edu/webcommunications/images/SealWithText_Small_Black.pnggraduate COMMITTEE curriculum PROPOSAL FORM

## Cover page Scroll over blue text to see further [instructions](#instructions)

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| --- | --- | --- |
| A.1. [Course or program](#Proposal) | **MGT 530 analytics, data analysis and decision making** |  |
| [Replacing](#Ifapplicable)  |  |  |
| A.2. [Proposal type](#type) | **Course: revision**  |  |
| A.3. [Originator](#Originator) | **Paul Jacques** | [Home department](#home_dept) | **Management and Marketing** |
| A.4. [Rationale](#Rationale)/Context | **The term “analytics” entails providing material to support the human decision-making process in a way that improves both the performance of the decision-makers as well as the quality of the decisions themselves. Technologies that enable new ways to collect and analyze data continue to evolve and the skillful use of data analytics and big data can radically improve a company’s performance, but that in order to achieve such improvements, managers need tools to cope with the ever-increasing volume of data as well as the increased variety of data that is available. Skilled use of analytics and data analysis can help the organization achieve higher levels of efficiency and effectiveness by, for example, creating models that more accurately predict demand for products and/or services. The domain of analytics refers to large-scale data sets and reflect analysis and results in real time and are effectively applied to areas that extend the capabilities of human decision-making.****This proposal in particular entails an expansion from a 3cr. course to a 4 cr. course thereby providing the student with the opportunity to develop skills in the topic areas using simulation modeling.**  |
| A.5. [Student impact](#student_impact) | **There is no negative impact. The course broadens the student’s ability to learn, use, and master simulation modeling as a tool to apply to select decision-making scenarios where analytics is warranted.**  |
| A.6. Impact on other programs |  |
| 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.)*:  | **Two new full-time faculty members would be needed in the Fall of 2018 to support this proposal and the package of related proposals. One faculty member would be a Ph.D. while the other would be an Executive in Residence, professionally qualified.** |
|  | [*Library*:](#library) | **no impact**    |
|  | [*Technology*](#technology) | **no impact**    |
|  | [*Facilities*](#facilities): | **This proposal would extend the required class meeting time one hour per week for the semester in which the course is offered.**  |
|  | Promotion/ Marketing needs  | **None…part of overall MS Operations Management promotion package.** |
| A.8. [Semester effective](#Semester_effective) | **Fall 2018** | A.9. Rationale if sooner than next fall |  |

B. [NEW OR REVISED COURSES](#delete_if):

|  | Old ([for revisions only](#Revisions) – list only information that is being revised) | New |
| --- | --- | --- |
| B.1. [Course prefix and number](#cours_title)  | MGT 530 | MGT 530 |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#title)  | Data Analytics | Analytics, data analysis and decision making |
| B.4. [Course description](#description)  | This course examines a variety of data analysis methods. Particular attention is given to regression modeling, time series modeling and analytics. | This course examines a variety of data analysis methods. Particular attention is given to regression modeling, time series modeling, and analytics using simulations. |
| B.5. [Prerequisite(s)](#prereqs) | Graduate status, program admission or consent of instructor. | Graduate status. |
| B.6. [Offered](#Offered) |  |  |
| B.7. [Contact hours](#contacthours)  | 3 | 4 |
| B.8. [Credit hours](#credits) | 3 | 4 |
| B.9. [Justify differences if any](#differences) |  |
| B.10. [Grading system](#grading)  |  |  |
| B.11. [Instructional methods](#instr_methods) | Lecture | Seminar | Small group |  | Lecture | Seminar | Small group | Individual | |
| B.12.[Categories](#required) |  |  |
| B.13. [How will student performance be evaluated?](#performance) | Exams | Presentations | Papers | Class Work | Quizzes | Projects | | Exams | Presentations | Papers | Class Work | Quizzes | Projects | Simulation results in addition to existing performance evaluation method. |
| B.14. [Redundancy with, existing courses](#competing) |  |  |
| 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 the outcome be measured?**](#measured) |
| --- | --- | --- |
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| 1. Determine/ensure the quality of data.
2. Demonstrate techniques for identifying potential problems within datasets.
3. Identify potential ethical issues related to data projects.
4. Select the appropriate method of data analysis.
5. Interpret the results of a variety of data analysis methods.
6. Present data findings effectively
7. Determine the degree to which the results of a variety of data analysis methods can improve decision making.
 | Certified Analytics Professional | Student achievement of the targeted course learning outcomes will be measured via performance on tests, quizzes and assignments that specifically relate to the course learning objectives and based on standardized questions related to the Certified Analytics Professional’s body of knowledge including business problem modeling, analytics problem modeling, methodology selection, model building |

| B.17. [**Topical outline**](#outline)**: Do NOT insert a full syllabus, only the topical outline** |
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| Topic Outline I. Data distributionsA. single variable distributionsB. categorical variablesC. descriptives associated with data distributionsII. Special data1. Time series
2. outliers
3. missing values

 III. Relationships among variables1. the role of “theory based” arguments
2. correlation and causation
3. graphical depictions of relationships among variables
4. tabular depictions of relationships among variables

 IV. Distributions common in Operations/project management1. Normal distribution
2. Poisson distribution
3. Binomial distribution

V, Regression analysis as a test of hypothesis1. Hypothesis testing fundamentals
2. Simple linear regression
3. Multiple linear regression
4. Use and construction of dummy variables
5. defining critical metrics
6. interpreting results

VI. Forecasting1. Time series analysis
2. Moving averages
3. Seasonal models

VII. Optimization modelling techniques1. Product mix model concepts
2. Sensitivity analysis
3. Resource scheduling

VIII. Control charts1. Variables charts
2. Attributes charts
3. Selection of appropriate options

IX. Simulation modelingA. Optimization modelingB. Data miningC. Monte Carlo simulationsX. Applications and implications of data analysis1. Determination of appropriate courses of action
2. Application/relevancy of Deming’s 14 points
3. Juran’s Quality Principles
4. Phillip Crosby’s “Quality is Free” application
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| **INSTRUCTIONS FOR PREPARING THE CATALOG COPY**: The proposal must include all relevant pages from the college catalog, and must show how the catalog will be revised. (1) Go to the “Forms and Information” page on the Graduate Committee website. 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 form, especially making sure that program totals are correct if adding/deleting course credits.  |

## D. Signatures

* Changes that directly impact more than one department/program MUST have the signatures of all relevant department chairs, program directors, and relevant dean (e.g. when creating/revising a program using courses from other departments/programs).
* Proposals that do not have appropriate approval signatures will not be considered.
* Type in name of person signing and their position/affiliation.
* Send electronic files of this proposal and accompanying catalog copy to graduatecommittee@ric.edu and a printed or electronic signature copy of this form to the current Chair of Graduate Committee. Check Graduate Committee website for due dates.

##### D.1. Approvals: required from programs/departments/deans who originate the proposal. may include multiple departments, e.g., for joint/interdisciplinary prposals.

| Name | Position/affiliation | [Signature](#_Signature" \o "Insert electronic signature, if available, in this column) | Date |
| --- | --- | --- | --- |
| Paul Jacques | Director, MS Operations Management Program |  |  |
| Mike Casey | Chair of Management and Marketing |  |  |
| Jeffrey Mello | Dean of the School of Business |  |  |

##### D.2. [Acknowledgements](#acknowledge): REQUIRED from OTHER PROGRAMS/DEPARTMENTS IMPACTED BY THE PROPOSAL. SIGNATURE DOES NOT INDICATE APPROVAL, ONLY AWARENESS THAT THE PROPOSAL IS BEING SUBMITTED. List all other programs and departments affected by this proposal. Signatures from these departments are required in the signature section. CONCERNS SHOULD BE BROUGHT TO THE GRADUATE COMMITTEE MEETING FOR DISCUSSION.

| Name | Position/affiliation | [Signature](#Signature_2) | Date |
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