# http://www.ric.edu/webcommunications/images/SealWithText_Small_Black.pngUNDERGRADUATE CURRICULUM COMMITTEE (UCC) PROPOSAL FORM

## Cover page scroll over blue text to see further important [instructions](#instructions): [if not working select “COMMents on rollover” in your Word preferences under view] please read these.

**N.B. DO NOT USE HIGHLIGHT, where choices are given within categories, please DELETE those THAT DO NOT APPLY TO YOUR PROPOSAL. Do not delete numbered categories.**

**ALL numbers in section (A) to be completed, including the impact ones (#5-7), put “none” if that is the case.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A.1. [Course or program](#Proposal) | **Math 460: Seminar in Data Science** | | | |  |
|  |  | | | |
| A.2. [Proposal type](#type) | **Course: creation |** | | | |
| A.3. [Originator](#Originator) | **Rebecca Sparks** | [Home department](#home_dept) | **Mathematics and Computer Science** | | |
| A.4. [Context and Rationale](#Rationale) | **Graduates who enter the field will be expected to embark upon projects which start with a scientific question and participate in the process of collecting data, and then appropriately analyzing, synthesizing, cleaning, and interpreting the results of their data analysis. It is particularly important that these graduates have the ability to communicate their results, as well as justify the methods that were used in order to draw meaning from the data. In today’s technological world, this data can be overwhelming in size. It is essential for students to be exposed to the process of determining which tool(s) to use in order to analyze, visualize, and contextualize such massive data sets. We believe this capstone experience is an essential tool to complete the students’ preparation. Such a capstone course is outlined in the “Guidelines for Undergraduate Programs in Data Science.”1**   1. De Veaux, R. Agarwal, M., Averett, M., Baumer, B., Bray, A., Bressoud, T., …, Ye, P., 2016, ‘Curriculum Guidelines for Undergraduate Programs in Data Science’, Retrieved October 4, 2019 (<https://www.amstat.org/asa/files/pdfs/EDU-DataScienceGuidelines.pdf>). | | | | |
| A.5. [Student impact](#student_impact) | **This course will be part of the Bachelor of Science in Data Science. The proposed major has 64 credits, and we expect students to be able to complete the program within four years.** | | | | |
| A.6. [Impact on other programs](#impact) |  | | | | |
| A.7. [Resource impact](#Resource) | [*Faculty PT & FT*](#faculty): | **Current existing full-time faculty will be used.** | | | |
| [*Library*:](#library) | **No additional needs are anticipated.** | | | |
| [*Technology*](#technology) | **We plan to use software that is already utilized on campus.** | | | |
| [*Facilities*](#facilities): | **We expect current labs to be sufficient.** | | | |
| A.8. [Semester effective](#Semester_effective) | **Fall 2020** | A.9. [Rationale if sooner than next Fall](#Semester_effective) | |  | |
| 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” page on the UCC 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. If new copy, indicate where it should go in the catalog. If making related proposals a single catalog copy that includes all is acceptable. Send as a separate single file along with this form. | | | | | |

B. [NEW OR REVISED COURSES](#delete_if)  **DO NOT use highlight. Do not delete numbered categories, just leave blank if they do not apply. Delete this whole page if the proposal does not include a new or revised course. Always fill in b. 1 and B. 3 for context.**

|  | 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 460** |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#title) |  | **Seminar in Data Science** |
| B.4. [Course description](#description) |  | Students will participate in a project in which they consider a scientific question, collect and analyze a substantial data set, and formally communicate their results. |
| B.5. [Prerequisite(s)](#prereqs) |  | **MATH 445** |
| 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) |  | **Seminar | Laboratory | Small group** |
| B.12.[Categories](#required) |  | **Required for major in B.S. in Data Science** |
| B.13. Is this an Honors course? |  | **NO** |
| B.14. [General Education](#ge)  N.B. Connections must include at least 50% Standard Classroom instruction. |  | **NO** |
| B.15. [How will student performance be evaluated?](#performance) |  | **Attendance | Class participation | Presentations | Papers |**  **Class Work | Projects |** |
| B.16 [Recommended class-size](#class_size" \o "Check appendix XVIII in the UCC Manual for Best Practices) |  | **15** |
| B.17. [Redundancy statement](#competing) |  | **No similarities.** |
| B. 18. Other changes, if any |  | |

| B.18**.** [**Course learning outcomes**](#outcomes)**: List each one in a separate row** | [**Professional Org.Standard(s)**](#standards)**, if relevant** | [**How will each outcome be measured**](#measured)**?** |
| --- | --- | --- |
| Students will learn to analyze literature in the profession. |  | See B.15 |
| Students will apply knowledge in mathematics, statistics, and computer science to solve problems. |  | See B. 15 |
| Students will choose, fit, and use mathematical models to solve problems. |  | See B. 15 |
| Students will use a high-level language to explore, visualize, and form hypotheses about data. |  | See B. 15 |
| Students will understand the connections between the knowledge domains of mathematics, computer science and statistics and use a variety of skills from these domains to solve problems. |  | See B. 15 |
| Students will conduct data-based investigations and effectively communicate their findings. |  | See B. 15 |
| Students will receive raw data then clean, transform, and structure the data for analysis. |  | See B. 15 |
| Students will communicate data-based findings visually, orally, and in writing. |  | See B. 15 |

| B.19. [**Topical outline**](#outline)**: DO NOT INSERT WHOLE SYLLABUS, JUST A TWO-TIER TOPIC OUTLINE. Proposals that ignore this request will be returned for revision.** |
| --- |
| 1. Literature Review    1. Analysis of tools used in each paper reviewed 2. Brainstorming potential ideas    1. Literature search for each topic of interest with feasibility discussion of each idea. 3. Data collection 4. Determine appropriate methods for preparing the data for analysis 5. Analysis of data and troubleshooting 6. Outlining the Writing Process 7. Paper Preparation and Conferences 8. Presentations |

## D. Signatures

* Changes that affect General Education in any way MUST be approved by ALL Deans and COGE Chair.
* Changes that directly impact more than one department/program MUST have the signatures of all relevant department chairs, program directors, and their relevant dean (e.g. when creating/revising a program using courses from other departments/programs). Check UCC manual 4.2 for further guidelines on whether the signatures need to be approval or acknowledgement.
* 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 [curriculum@ric.edu](mailto:curriculum@ric.edu) and a printed signature copy of this whole form to the current Chair of UCC. Check UCC 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 proposals.

| Name | Position/affiliation | [Signature](#_Signature" \o "Insert electronic signature, if available, in this column) | Date |
| --- | --- | --- | --- |
| Stephanie Costa | Chair of Mathematics and Computer Science |  |  |
| Earl Simson | Dean of Arts and Sciences |  |  |

##### D.2. [Acknowledgements](#acknowledge): REQUIRED from OTHER PROGRAMS/DEPARTMENTS (and their relevant deans if not already included above) that are IMPACTED BY THE PROPOSAL. SIGNATURE DOES NOT INDICATE APPROVAL, ONLY AWARENESS THAT THE PROPOSAL IS BEING SUBMITTED. CONCERNS SHOULD BE BROUGHT TO THE UCC COMMITTEE MEETING FOR DISCUSSION; all faculty are welcome to attend.

| Name | Position/affiliation | [Signature](#Signature_2) | Date |
| --- | --- | --- | --- |
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|  |  |  | Tab to add rows |