# 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): please read.

**N.B. DO NOT USE HIGHLIGHT, please DELETE THE WORDS THAT DO NOT APPLY TO YOUR PROPOSAL**

**ALL numbers in section (A) need to be completed, including the impact ones.**

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| --- | --- | --- |
| A.1. [Course or program](#Proposal) | **CIS 302- Intermediate Computer Programming in Business**  |  |
| [Replacing](#Ifapplicable)  | **CIS 355 and CIS 357** |
| A.2. [Proposal type](#type) | **Course: creation**  |
| A.3. [Originator](#Originator) | **Dr. Lisa Bain** | [Home department](#home_dept) | **Accounting and CIS** |
| A.4. [Context and Rationale](#Rationale)  | CIS majors currently are required to choose one programming language class from a list of five courses:CIS 255 Introduction to Java in Business CIS 256 Introduction to COBOL Programming CIS 257 Introduction to Visual Basic in Business CIS 355 Advanced Business Applications in Java CIS 357 Advanced Business Applications in Visual BasicWe are proposing that the two advanced programming courses be replaced by one advanced programming class which does not list a specific programming language. This will be the complement and follow-on to the new CIS 301 Introduction to Computer Programming in Business course. CIS 302 will be one of many restrictive electives in the CIS program and allow CIS faculty to offer a more advanced programming course. With the new curriculum, CIS majors will be required to take TWO CIS 300-level or higher courses. The IT industry is very broad and provides many job opportunities to CIS graduates. These electives allow the CIS faculty to provide a variety of topics that align with current trends and provide students the opportunity to choose courses in their area of interest. The electives include course in Web Design, Mobile Application Development, Hardware/Software Systems, Advanced Office Applications, Human Computer Interaction (HCI, Introduction to Data Science, and Data Visualization. Having an intermediate programming course (CIS 302) will keep this topic as an option for the program. During most semesters, the CIS program offers at least two electives for students.  |
| A.5. [Student impact](#student_impact) | No negative impacts are foreseen. This course will be offered on as needed basis as part of the various CIS 300-level or higher electives offered each semester. 1. CIS majors that find computer programming interesting can choose this as one of their restrictive electives, providing an opportunity to deepen their skillsets.
2. CIS majors will have more flexibility in choosing the type of electives taken in their major.
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| A.6. [Impact on other programs](#impact)  | **None.** |
| A.7. [Resource impact](#Resource) | [*Faculty PT & FT*](#faculty):  | **None. Faculty already teaching CIS 355 and 357.** |
| [*Library*:](#library) | **None** |
| [*Technology*](#technology) | **None** |
| [*Facilities*](#facilities): | **None. Existing facilities are already being used to teach CIS 355 and 357.** |
| A.8. [Semester effective](#Semester_effective) | **Fall 2018** | A.9. [Rationale if sooner than next Fall](#Semester_effective) | **N/A** |

B. [NEW OR REVISED COURSES](#delete_if" \o "Delete this entire section if it is not applicable to  your proposal. If revising a course, you ONLY need to fill in the before and after details of those aspects you would like to change, and just leave the rest blank.)  **DO NOT use highlight. Delete this whole page if the proposal does not include a new or revised course.**

|  | Old ([for revisions only](#Revisions))Only include information that is being revised, otherwise leave blank (delete provided examples that do not apply) | NewExamples are provided for guidance, delete the ones that do not apply |
| --- | --- | --- |
| B.1. [Course prefix and number](#cours_title)  |  | **CIS 302** |
| B.2. Cross listing number if any |  | **N/A** |
| B.3. [Course title](#title)  |  | **Intermediate Computer Programming in Business** |
| B.4. [Course description](#description)  |  | **A continuation of CIS301, topics will include the** **design and implementation of functions, classes, and class hierarchies; software development strategies; error handling and exceptions; graphics and GUIs.** |
| B.5. [Prerequisite(s)](#prereqs) |  | **CIS 255 or CIS 256 or CIS 257 or CIS 301** |
| B.6. [Offered](#Offered) |  | **As needed** |
| B.7. [Contact hours](#contacthours)  |  | **4** |
| B.8. [Credit hours](#credits) |  | **4** |
| B.9. [Justify differences if any](#differences) |  |
| B.10. [Grading system](#grading)  |  | **Letter grade**  |
| B.11. [Instructional methods](#instr_methods) |  | **Laboratory | Lecture**  |
| B.12.[Categories](#required) |  | **Required for CIS majors only** |
| 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 | Exams | Presentations |** **Class Work | Quizzes |****Projects**  |
| B.16. [Redundancy statement](#competing) |  | **The closest course offered at RIC would be CSCI221 Computer Programming II. However, CSCI221 specifically utilizes the Java programming language & does not focus exclusively on programming within the business domain.** |
| B. 17. 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)**?** |
| --- | --- | --- |
| **Understand advanced computing, object-oriented, and programming concepts -- independent of language** **implementation:**  |  | **There will be multiple in class exams which will contain objective questions and programming problems.** |
| **Ability to design algorithms for given a problem situation and** **implement using programming language.**   |  | **Students will complete a significant number of programming assignments of increasing complexity. These programming assignments will require that students demonstrate the** **ability to design, code and test programs.**  |
| **Ability to test and debug programs.**  |  | **Students will be required to find and fix syntax, logic & runtime errors.** **Students will apply techniques for preventing errors.** |
| **Able to apply standard documentation practices.**  |  | **Students will be required to internal and/or external documentation for all assignments.** |

| B.19. [**Topical outline**](#outline)**: Do NOT insert whole syllabus, we just need a two-tier outline** |
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| **Topic** |
| 1. Review of CIS301 topics
	1. Variables, Data Types, Constants, Arithmetic Expressions
	2. Decision Structures (e.g. If, If-Else)
	3. Repetition Structures (e.g. For, Do/While)
	4. Functions/Procedures/Methods
	5. Files and Exception Handling
	6. Classes and Object-Oriented Programming
2. Objects and classes
	1. Classes design
	2. Inheritance
	3. Polymorphism
3. Understanding class definitions and design
	1. Five principles of class design
	2. SRP, OCP, LSP, DIP, ISP Principles
4. Object interaction
	1. Definitions and principles
5. Grouping objects
	1. Functions and operations
	2. Reusability techniques
6. Functional Processing of Collections
	1. Definitions and concepts
	2. Fixed-size collections – arrays
7. Improving structure with inheritance
	1. Creation from existing classes
	2. Generalization
8. Abstraction techniques
	1. Definitions, concepts, and implementation
	2. Abstract classes and super classes
9. Building graphical user interfaces
	1. Techniques
	2. Six User Interface Design Principles
	3. Navigation
	4. Input/output controls
10. Handling errors
	1. Techniques
	2. Message principles
	3. Coding examples
11. Designing applications
	1. Planning phase
	2. Analysis phase
	3. Design phase

Implementation phase |

## 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 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 and a printed or electronic signature copy of this 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 prposals.

| Name | Position/affiliation | [Signature](#_Signature" \o "Insert electronic signature, if available, in this column) | Date |
| --- | --- | --- | --- |
| Lisa Bain | Chair of Accounting & CIS |  |  |
| Jeff Mello | Dean of 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. CONCERNS SHOULD BE BROUGHT TO THE UCC COMMITTEE MEETING FOR DISCUSSION

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