

OFFICE OF THE PROVOST
PROCESS A
DEC 22 2004

NON-GENERAL EDUCATION - CURRICULUM PROPOSAL

SOC #04-05. 1/3

Disciplines

Effective 8/2004 to be implemented Fall 2005 - February 11, 2005 to be implemented Spring 2005

PROPOSAL TITLE: C++ FOR JAVA PROGRAMMERS

Sponsors: ADRIAN RUSC (Email: ARUSC@CORNELL.EDU) 5089
JENNIFER RAY (Email: JAY@CORNELL.EDU) 7106

DEPARTMENT: COMPUTER SCIENCE

COLLEGE: LHS

If Liberal Arts & Sciences CHECK: History/Humanities Math/Sciences Social/Behavioral Sciences
 UNDERGRADUATE GRADUATE

THE ATTACHED NON-GEN-ED PROPOSAL IS BEST DESCRIBED BY THE ITEM(S) CHECKED

- New non-gen-ed course
- Short-term non-gen-ed course
- Minor curricular changes (fewer than three)
- Existing non-gen-ed course
- Non-gen-ed degree requirements
- Major
- Minor, specialization, concentration, track, certificate program

THE FOLLOWING SIGNATURES REPRESENT APPROVAL

Department Chair: [Signature] Date: 10/14/05
 Department Curriculum Chair: [Signature] Date: 10/6/2004
 Academic Dean: [Signature] Date: 10/6/04

COLLEGE CURRICULUM COMMITTEE

OPEN HEARING Date: 11/19/2004 Approved Not Approved
 COLLEGE CURRICULUM CHAIR: [Signature]
 Senate Curriculum Chair Signature: [Signature] Date: 12/20/04
 Comments: _____

EXECUTIVE VICE PRESIDENT/PROVOST Signature: [Signature] Date: 1/3/05
 Approved Not Approved

REGISTRAR
 Date: 1/7/05 Course Description Registered & Approved - Emerita's Taxonomy & Course #: 0704115
 Registrar Signature: [Signature]

NOTIFICATION FORWARD

SOC Chair Academic Dean Department Chair Registrar R CAP
 Provost Affairs Others

TM 2/1/05 DB/B

Proposal For A New Non-General Education Course:

C++ for Java Programmers

1. Details

- a. **Course Title:** C++ for Java Programmers
- b. **Sponsors:** Adrian Rusu and Jennifer Kay, Computer Science Department, Rowan University.
- c. **Semester hours:** 1
- d. **Course Level:** Undergraduate, [Freshman/Sophomore Level]
- e. **Prerequisites:** Introduction to Object Oriented Programming (0704.113), or equivalent background in object-oriented programming
- f. **Suggested Time and Scale of Implementation:** This course is to be offered every semester, and possibly in the summer.

2. Curricular Effect

This course will not be required for students in the CS major; it may be taken as a free elective.

- **Offerings:** No class will be dropped as a result of this course.
- **Adequacy of Resources:** No additional resources will be needed. The current computing resources are adequate to implement the proposed course.
- **Recommended Library Resources:** Additional books on C++ will be ordered for the library.
- **Short-term Evaluation:** We hope to offer this course in Fall '06, at which time a short-term evaluation will be provided.

3. Rationale

Our curriculum is changing from a C++ based curriculum to a Java based curriculum. This means that all the introductory courses for computer science majors, and other courses such as Data Structures, Analysis of Algorithms, Operating Systems, Compiler Design, etc. which need to use a language to express concepts will be using Java rather than C++ to express those concepts. However, it does not mean that students will be required to write all of their programs in Java in all their advanced computer science courses. Different programming languages have different features, and while most programs can be written in any language, some languages include features that might make the program simpler or clearer. Furthermore, C++ is used on a larger scale than Java in industry.

Our transition from C++ to Java was motivated by several factors:

1. Java is easier to learn and use than C++ for the concepts of computer science
2. Most other B.S. programs in the U.S. have switched, or are switching, to Java
3. ETS has changed the AP course to a Java based course, and we wish to make the transition to Rowan easier for our transfer students.

After this transition period (and perhaps during this period) there will be a number of current students, as well as transfer students, who began their study of computer science with Java and will want to learn the details of C++ in order to use this language in the advanced courses, or to be more competitive in the real-world. The syntax of C++ is similar to the syntax of Java, and thus a 1-credit course should be sufficient for those students who have an adequate background.

4. Essence of the Course

- **Objectives in Relation to Student Outcomes:** Students taking this course will already have the ability to write programs in an object-oriented language such as Java. It will be assumed that they can not only use, but also design, classes appropriately. Students will write several programs in C++ to demonstrate knowledge of the syntax and semantics of C++. They will demonstrate knowledge of pointers, inheritance, encapsulation, and polymorphism, as expressed in C++. The programs they write will reflect knowledge of the topics shown below.

a. Topical Outline/Content:

- Primitive Data Types
- Control Structures
- Methods (functions)
 - Function Prototypes
 - Call by Value and Call by Reference
 - Function Overloading
 - Function Template
- Classes
 - Constructors
 - Destructors
 - Parameterized Constructors
 - Encapsulation
 - Inheritance
 - Polymorphism
- File Processing
- Pointers
 - Pointers and Arrays
 - Passing an Array to a Procedure
 - Pointers and Classes

- GUI Programming

- b. Evaluation of students and grading procedure:** Students will be evaluated on the basis of functional, correctly working programs, quizzes, and exams.
- c. Course Evaluation:** This course will be evaluated through student surveys, as well as by the Computer Science Accreditation Commission when our major is to be re-evaluated in 2006.

5. Consultations

- a. Bob Fleming, Management & M.I.S.
- b. Shreekanth Mandayam, Electrical & Computer Engineering
- c. Ron Czochoz, Mathematics

Rowan University
**CURRICULUM PROPOSAL
 LIBRARY RESOURCE FORM**

The purpose of this form is to provide a channel of communication between the library and faculty, changing and designing new courses/programs. The information will be used to assess the resources available in the library, and to identify resources the library should acquire to support the course program. The information will also provide rationale for institutional support for library acquisitions.

This form should be completed in a coordinated effort between the course sponsor(s) and the academic department liaison librarian. **THIS FORM MUST BE COMPLETED FOR ALL CURRICULUM PROPOSALS.**

- The sponsor(s) complete parts A & B.
 If assistance is required to complete parts A & B, please notify the liaison librarian.
- Forward this form to the librarian who will complete parts C, D & E.

This form must be completed and attached to the original curriculum proposal before being approved by the Senate Curriculum Committee

A. College LAS Department COMPUTER SCIENCE
 Proposed by ADRIAN RUSC / JENNIFER KAI Date 10/06/2004
 Course Title C++ FOR JAVA PROGRAMMERS
 Anticipated Date for Course/Program Offering FALL 2006

B. List specific resources that should be acquired to support this course

NONE

C. Describe the resources available in the library to support this course/program, including reference, monographic, electronic databases, audio-visual materials, etc. A summary statement is sufficient: The following books on C++ are already available:

C++ Reference: Stanley Lippman
The C++ Programming Language: Bjarne Stroustrup
C++ How to Program: Harvey M. Deitel
and many other books on this topic

D. List key periodicals available in the library to support this course/program

NONE

E. Librarian comments and recommendations

Name: LIBRARIAN LIAISON [Signature] Librarian Signature: [Signature]



Electrical and Computer Engineering

September 26, 2004

Professor Adrian Rusu
Computer Science Department
Rowan University
Glassboro, NJ 08028

Re: C++ for Java Programmers

Dear Professor Rusu:

The Electrical & Computer Engineering department has received your course proposal entitled "C++ Java Programmers." We have reviewed the rationale, curricular effect and proposed course content and are pleased to support this course offering.

Best wishes,

Shreekanth Mandayam, Ph.D.
Associate Professor
ECE Curriculum Committee Chair

Cc: Dr. Jennifer Kay, Chair, CS
Dr. John Schmalzel, Chair, ECE

From: Jennifer Kay <kay@elvis.rowan.edu>
To: "Stephen J. Hartley" <hartley@elvis.rowan.edu>, Jennifer Kay <kay@elvis.rowan.edu>, Nancy Tinkham <nlt@elvis.rowan.edu>, Adrian Rusu <Rusu@rowan.edu>, Khaled Amer <Amer@rowan.edu>
Date: 10/5/04 1:30PM
Subject: [Fwd: Second Course Proposal Consultation]

----- Original Message -----

Subject: Second Course Proposal Consultation
Date: Tue, 5 Oct 2004 10:19:22 EDT
From: RSFHAZMAT@aol.com
To: kay@elvis.rowan.edu
CC: fleming@rowan.edu, RSFHAZMAT@aol.com

Jennifer:

Thank you for affording the Management/MIS Department the opportunity to review and comment on your course proposal for /C++ for Java Programmers/.

I have discussed the proposed course with our MIS faculty and we have no reservations in supporting this course.

Bob Fleming
Chairman
Management/MIS Department

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Jennifer Kay, Chair
Rowan University
Computer Science Department
201 Mullica Hill Road
Glassboro, NJ 08028
email: kay@elvis.rowan.edu
voice: 856-256-4806
fax: 856-256-4741
web: <http://www.rowan.edu/~kay/>

From: "Ronald Czocho" <Czocho@rowan.edu>
To: <rusu@rowan.edu>
Date: 9/21/04 11:34AM
Subject: Re: New CS Course Proposal

Adrian,

I have reviewed your course proposal for C++ for JAVA Programmers and I see no concern about this proposal from the point of view of the Mathematics Department.

Ron Czocho, Chairman
Mathematics Department
Rowan University
Phone: 856.256.4845
Fax 856.256.4816
Webpage:
<http://www.rowan.edu/mars/depts/math/czocho/Homepage/homepage.htm>
Dept. webpage: <http://www.rowan.edu/mars/depts/math/>

>>> "Adrian Rusu" <rusu@rowan.edu> 8/25/2004 10:47:51 PM >>>
Dear Dr. Czocho,

Me and Dr. Kay, both from CS department, have put together a proposal for a new 1-credit non-general education course, called C++ for Java Programmers.

We would appreciate if you could send us your comments on this proposal.

Thank you for your collaboration,

Adrian Rusu, Ph.D.
Assistant Professor
Department of Computer Science
Rowan University
201 Mullica Hill Road
Glassboro, NJ 08028-1701
Phone: 856-256-4500 x3884
Email: rusu@rowan.edu
HTTP: <http://elvis.rowan.edu/~rusu>

6. Catalog Description

0704.109 (Suggested hegis number)

1 s.h.

C++ for Java Programmers

(Prerequisite: 0704.113, or equivalent experience)

This course is designed for students who have substantial programming experience in an object-oriented language such as Java, but who wish to learn C++, a language that is still commonly used in research and industry. Students will study the syntax and semantics of C++, pointers, classes (inheritance, encapsulation, polymorphism, methods, etc.), control structures, file processing, and GUI programming.