

CURRICULUM PROPOSAL FORM 1999-2000

NON-GENERAL EDUCATION PROCESS A

***DEADLINES:** Deadline dates for 1999/2000 submissions: Regular proposals: October 22, 1999 to be implemented in Fall 2000; Short-Term proposals: December 10, 1999 to be implemented in Fall, 2000; Regular proposals February 18, 2000 to be implemented in Spring, 2001; March 24, 2000 for short-term courses to be implemented in Spring 2001.

c704-222 for Spring 2001

PROPOSAL TITLE: Minor curricular change: change Semester Hours of Data Structures + Algorithms

SPONSOR(S): Ganesh Baliga + Jennifer Kay

DEPARTMENT: Computer Science

COLLEGE: LAS

IF LAS CHECK ONE: History/Humanities Math/Sciences Social/Behavioral Sciences

Check one: 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) to:

- existing non-gen-ed course
- non-gen-ed degree requirements
- major
- minor, specialization, concentration, track, certificate program

DEPARTMENT
(Signature indicates approval)

Dept. Curriculum Chair / Date 11/21/99

Dept. Chairperson / Date 11/21/99

ACADEMIC DEAN

Approved Not Approved Comments:

Dean's Signature/Date [Signature] 11/2/99

COLLEGE CURRICULUM COMMITTEE

Date of open hearing (if necessary) 11/30/99 Approved Not Approved

Comments:

Faculty/compuler lab-resources need to be provided

Signature of College Chair/Date: [Signature] 11/30/99

UNIVERSITY CURRICULUM COMMITTEE

Date Received/Processed 11/30/99

Comments:

Received general curriculum affect with Dean Hengler.

Curriculum Chair Signature [Signature]

Date Announced At Senate 9-12-00

EXECUTIVE VICE PRESIDENT/PROVOST

Approved Not Approved If no, reasons are as follows:

Student Credit Hours _____ Faculty Load Hours _____ Equalized Credit Hours _____

Official Copy & Approval Sheet Filed (Date): _____

Executive VP/Provost Signature/Date [Signature] 9/21/00

REGISTRAR

Date Approved Course Description Received 4/25/00

Hegis Taxonomy & Course Number Assigned 0701-222

Registrar Signature/Date [Signature]

NOTIFICATION FORWARD

____ Senate Curriculum Committee Chairperson

____ Academic Dean(s)

____ Department Chairpersons

____ Registrar

____ Sponsor(s)

ROWAN UNIVERSITY
Department of Computer Science
Minor Curricular Change
Change Semester Hours of “Data Structures and Algorithms”

1. Details

- a) Change requested: 0704.222 Data Structures and Algorithms: Change from a 3 semester hour to a 4 semester hour incorporating a Laboratory for students
- b) Sponsors: Ganesh Baliga and Jennifer Kay, Computer Science Department

2. Rationale

- a) Statement of “need” for such a change

Data Structures is a second semester course for majors in the computer science department. Students are continuing to study a language taught in Computer Science and Programming, while learning about common techniques to solve common problems in computer science. Adding a lab component would make the mastery of the language issues much easier for students, thus allowing more class time to be spent on the language-independent concepts covered.

- b) Statement of curricular effect

Students pursuing a major will require 123 semester hours to graduate (61 s.h. of Major Requirements). Students pursuing a minor will require 23 semester hours of coursework

3. Results of Consultation:

The Electrical & Computer Engineering and Mechanical Engineering Programs were consulted.

4. Resources

Each section of Data Structures will require a computer laboratory for one class meeting each week. Faculty will receive 5 load hours for this course. This is consistent with other lab courses in Computer Science and other departments.

We do not currently have the resources to cover for this increase. Because this course is important to us, this will probably result in 2 fewer sections of Intro to Programming (A General Education Elective) and/or Web Programming and/or Computer Graphics (Advanced Electives for Computer Science Majors) (for teaching time).

5. Sample Laboratory Projects

While we wish to leave it to the individual instructor to specify the actual laboratories, the following are typical topics that may be used in the laboratory. Most, but not all, are programming assignments:

- Testing and Program Correctness
- Using the Debugger
- Multiple Implementations of a class based on a single Abstract Data Type
- Algorithm analysis and efficiency: analyzing the efficiency of two different algorithms that accomplish the same task, comparing their run times for different sized data sets.
- Writing recursive programs
- Implementing and using Linked Lists
- Implementing the List Abstract Data Type (ADT) and writing client programs that use Lists
- Implementing and writing clients for the Stack ADT
- Implementing and writing clients for the Queue ADT
- Implementing and writing clients for the Table ADT
- Implementing and writing clients for the Tree ADT
- Implementing and writing clients for the binary Tree ADT
- Implementing and writing clients for the binary search Tree ADT
- Implementing and writing clients for the graph ADT

6. Course Evaluation

The department curriculum committee will evaluate this course.

0704.222 4 s.h.

Data Structures and Algorithms

(Prerequisites: 1703.150; must attain a C- or better in 0704.103)

This course features programs of realistic complexity. The programs utilize data structures (string, lists, graphs, stacks, trees) and algorithms (searching, sorting, etc.) for manipulating these data structures. The course emphasizes interactive design and includes the use of microcomputer systems and direct access data files. A weekly lab session is included.

From: John L. Schmalzel
To: Kay, Jennifer S.
Date: 10/21/99 11:41PM
Subject: Re: Consultations

MEMORANDUM

Date: 21 OCT 1999

TO: Dr. Jennifer Kay, and CS Curriculum Committee
FR: J. Schmalzel, Chair ECE (jls)

SUBJ: Course/Curriculum Review

I have had a chance to review your department's proposed course/curriculum changes. In an effort to get you some immediate feedback, I am providing the following comments. In the case of Embedded Systems, additional comments to follow.

A. Minor Changes:

1. Change Semester Hours of Data Structures and Algorithms.

ECE Response: We understand your desire for more lab contact with your students. We wish it would have been possible under the original 3-SCH version of the course in order to avoid necessitating a new version of Data Structures intended for ECE students only. However, we have a firm cap on our total SCH required for the degree (128 SCH).

2. Change Restricted Electives for CS Majors.

ECE Response: This is a CS-Department decision taken in response to self-assessment of curricular objectives.

3. Change Prereq's for CS Senior Project.

ECE Response: This is a CS-Department decision taken in response to self-assessment of curricular objectives.

4. Drop pre-calc minimum grade requirement for CS majors.

ECE Response: This is a CS-Department decision taken in response to self-assessment of curricular objectives.

B. Course Proposals

1. Data Structures For Engineers.

ECE Response: (Continuation of comment from A.1. above.) A desirable outcome of the course development/planning process would be to determine a way to teach a hybrid course that would allow both CS and ECE students to co-exist within a single Data Structures course framework. We believe that it is important for our students to be mixed with your majors to enhance multidisciplinary opportunities--an objective that is not served by separating them by course.

A possible approach may be suggested by an experiment we've performed with our electronics course (0909.311), which has both ECE and ME students required to take it. We were able to create a hybrid course by sharing a single common lecture time per week, and then splitting off into second lecture/lab sessions to handle the perceived need for somewhat different focus between the groups. In the case of Data Structures, this might mean 2 lectures a week + lab, shared by both ECE and CS students, and a 3d lecture per week for CS students only. Other variations could be tried.

We would welcome the opportunity to explore options with your faculty.

2. Grad Topics in CS.

ECE Response: This is a CS-Department decision taken in response to self-assessment of curricular objectives.

3. Embedded Systems Programming.

ECE Response: (A more detailed response needs to be developed. Embedded systems development is dependent on hardware vs. software trade-offs, which is an ECE core element.)

{end memo}

>>> Jennifer S. Kay 10/21/99 09:48PM >>>

John,

Sorry for filling your mailbox tonight. We're still waiting for consultations from you on the following proposals:

Minor Changes:

- Change Semester Hours of Data Structures and Algorithms
- Change Restricted Electives for CS Majors
- Change Prereq's for CS Senior Project
- Drop pre-calc minimum grade requirement for CS majors

Course Props

- Data Structures For Engineers
- Grad Topics in CS
- Embedded Systems Programming

Any chance you could zap me an email with a copy of the above list of topics and "We support these" or any concerns that you have so that I can stick it on the back of our props? (In particular, let me know if you think the prereq's for the DS for Engineers makes sense)

I'm still waiting on some of our committee to finish looking over your two, My guess is that we'll have no problems with Adaptive Filters, but maybe some concerns over ANN's. I'm pushing people to finish reviewing so we can formally get back to you. I'll send you something or call you tomorrow morning.

Thanks!

-- Jennie

Jennifer S. Kay
Computer Science Department
Rowan University
201 Mullica Hill Road
Glassboro, NJ 08028
kay@elvis.rowan.edu
<http://www.rowan.edu/~kay>

CC: Baliga, Ganesh; Bergmann, Seth; ECE_Faculty; Tinkham, Nancy; Waksman, Adlai

From: Tirupathi R Chandrupatla
To: Kay, Jennifer S.
Date: 10/22/99 9:51AM
Subject: Consultations

Jennifer:

We support the following minor changes and course proposals from Computer Science.

Minor Changes:

- Change Semester Hours of Data Structures and Algorithms
- Change Restricted Electives for CS Majors
- Change Prereq's for CS Senior Project
- Drop pre-calc minimum grade requirement for CS majors

Course Props

- Data Structures For Engineers
- Grad Topics in CS
- Embedded Systems Programming

T.R.

Dr. Tirupathi R. Chandrupatla, P.E.
Professor and Chair
Mechanical Engineering
Rowan University
201 Mullica Hill Rd
Glassboro, NJ 08026
Ph: 856-256-5340 Fax: 856-256-5241



Memorandum

To: Dean Jay Harper

CC: Jennifer Kay, CS Dept.

From: Maureen O'Halloran, Chair, LAS/Math-Science Curriculum Committee,
Dept. Chemistry and Physics, Bosshart, extension 3525

Date: November 30, 1999

Re: Approval computer science course changes.

Proposals SCC numbers 718 and 719 were approved at the Nov 30 1999 meeting of the college curriculum committee (LAS/Math-Science). The curricular need for the changes were justified.

Both proposals indicated that resources were not adequate to meet the needs of the courses. Both proposals indicated that number of faculty were not adequate. Proposal 718 (which increased the credit hours of Data Structures and Algorithms by adding a laboratory component) also indicated that sufficient computer teaching labs are not available to meet the existing demand.

Since the proposal was signed at the Dean's level we did not feel that it was within our purview to question the availability of resources as long as the curricular need was documented and Department was willing to attempt to cope. The proposals were therefore approved with the added comment: "Faculty and computer lab resources need to be provided."