

CURRICULUM PROPOSAL FORM 2000-2001

NON-GENERAL EDUCATION PROCESS A

***DEADLINES:** Deadline dates for 2000/2001 submissions: Regular proposals: October 20, 2000 to be implemented in Fall 2001; Short-Term proposals: December 8, 2000 to be implemented in Fall, 2001; Regular proposals February 16, 2001 to be implemented in Spring, 2002; March 23, 2000 for short-term courses to be implemented in Spring 2002.

PROPOSAL TITLE: ...

SPONSOR(S): ...

DEPARTMENT: ...

COLLEGE: LAS

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

Check one: Undergraduate Graduate

0704 530

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)

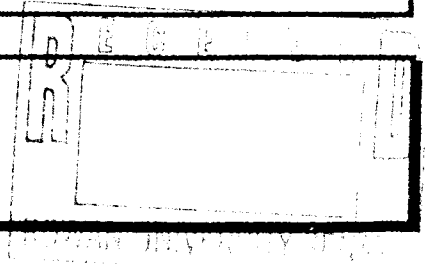
Dept. Curriculum Chair / Date [Signature] 10/20/00

Dept. Chairperson / Date [Signature] 10/20/00

ACADEMIC DEAN

Approved Not Approved Comments:

Dean's Signature/Date [Signature] 10 27 00



COLLEGE CURRICULUM COMMITTEE

Date of open hearing (if necessary) 02/20/01 Approved Not Approved

Comments:

Signature of College Chair/Date: [Signature] 04/04/01

UNIVERSITY CURRICULUM COMMITTEE

Date Received/Processed 5/22/01

Comments:

Curriculum Chair Signature [Signature] Date Announced At Senate 5/31/01

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] 6/5/01

REGISTRAR

Date Approved Course Description Received _____ Hegis Taxonomy & Course Number Assigned _____

Registrar Signature/Date [Signature] 6/8/01

NOTIFICATION FORWARD

Senate Curriculum Committee Chairperson

Academic Dean(s)

*memo sent
8/13/01*

Department Chairpersons

Registrar

____ Sponsor(s)

**Rowan University
Department of Computer Science**

Advanced Database Systems: Theory and Programming

Details

- A. Course Title: Advanced Database Systems: Theory and Programming
- B. Sponsor: Gabriela Hristescu, Department of Computer Science
- C. Credit Hours: 3
- D. Course Level: Graduate
- E.
- F. Prerequisites: 0704.340-Design and Analysis of Algorithms and 0707.321-Principles of Software Engineering.
- G. Suggested time and implementation: Course to be offered initially during fall 2001. Course to be offered once every year.
- H. Curricular Effect: This course will be an advanced elective for graduate students and a possible elective for a future Masters degree in Computer Science.
- I. Resources: Faculty, equipment and library resources are adequate.

Rationale

The extraordinary growth of information that is produced and consumed nowadays requires increasingly complex technologies to store, organize and query data using computers. Data management is therefore an essential component in the skill-set of a Computer Science student. It is a standard curricular area in Computer Science that is currently not offered at Rowan.

This course focuses on the design of Database Management Systems (DBMS) and their use to create databases. The course covers both the theoretical concepts and the implementation aspects of database systems with a special emphasis on relational database systems, SQL, programming (in a modern programming language such as C++ or Java) using a real database *Application Programming Interface* standard (such as Java Database Connectivity (JDBC) or Open Database Connectivity (ODBC), fundamentals of transaction-processing systems, concurrency control, recovery techniques, security and integrity, performance evaluation and tuning, and Object-based databases.

Note that the course “Design of Database Systems” (0702.338) is currently taught by the MIS department at Rowan. However, this course is taught with a different emphasis and omits several topics that are important from a Computer Science point of view such as database programming, database APIs such as JDBC and ODBC, etc.

Essence of the course

A. Objectives of the course in relation to student outcomes:

- This course is intended to provide a systematic introduction to databases starting from the basic theoretical concepts and leading towards implementation details and internals of database systems.
- The implementation will concern topics at the intersection of database systems, operating systems, and distributed computing research and development. The course will also cover case studies.
- Students will acquire the necessary knowledge to design, create and query a database using a database query language such as SQL and an Application Programmers Interface standard such as Java’s JDBC or Microsoft’s ODBC.
- Students will be introduced to the fundamentals of a transaction-processing system, concurrency control, recovery techniques, security and integrity, performance evaluation and tuning.

B. Topics covered will include:

- The architecture of a database system.
- Logical design of relational databases, including normalization.
- Data definition and data manipulation using SQL.
- Physical design, including storage management and access techniques such as ISAM, index creation mechanism such as B-Trees and B+-Trees.
- Database API Standards such as JDBC and/or ODBC.
- Database programming using a high level programming language such as C++ or Java.

- Transaction processing and concurrency control techniques such as locking and timestamp ordering.

- Database recovery techniques.
- Database security.
- Performance evaluation and tuning.
- Object Oriented Databases, Distributed Databases and other emerging database technologies.

C. Evaluation and Grading Procedure. Students will be evaluated based upon their performance in examinations (midterm, final), assignments and project(s). In practice, this course may be taught in conjunction with the undergraduate section. Graduate students will be required to do additional readings, assignments, projects and answer additional questions on the examination.

D. Course Evaluation. This course will be evaluated by the Department's curricular committee.

E. Textbook:

F.

A. Silberschatz, H.F. Korth , S. Sudarashan : *Database System Concepts*
McGraw-Hill.

or

Jeffrey Ullman and Jennifer Widom : *A First Course in Database Systems*
Prentice Hall, 1997.

Results of consultation

The MIS and Electrical & Computer Engineering Departments have been consulted on this proposal (see attached).

Catalog Description

0704.5##

3 s.h.

Advanced Database Systems: Theory and Programming

(Prerequisites: 0704.340-Design and Analysis of Algorithms and 0707.321-Principles of Software Engineering or permission from the instructor)

This course focuses on the design of DBMS and their use to create databases. The course covers both the theoretical concepts and the implementation aspects of database systems with a special emphasis on relational database systems, SQL, programming (in a modern programming language such as C++ or Java) using a real database *Application Programming Interface* standard (such as Java Database Connectivity (JDBC) or Open Database Connectivity (ODBC)), fundamentals of transaction-processing systems, concurrency control, recovery techniques, security and integrity, performance evaluation and tuning, and Object-based databases.



Mathematics Department

MEMO

TO: Jennifer Kay
Computer Science Department

FROM: Ron Czochor, Chair
Mathematics Dept

DATE: December 20, 2000

RE: Consultation on proposed changes to CS major

Thank you for the opportunity to review the changes you have proposed in the Computer Science B.S. degree. I have carefully studied your proposal and I support the suggested changes. These changes will require your students to develop a more focussed set of electives and I think that is a good thing.

The inclusion of Calculus I in your core will have no effect on the Mathematics Department since the students already take the course. The only possible effect would be that it better describes the appropriate order for taking Calculus I with respect to Discrete Mathematics.

I am disappointed that Numerical Analysis will no longer be listed as a possible Restricted Elective. My disappointment stems from the fact that the field of numerical analysis was the place where computer science was born. Nevertheless, I understand the need for this change and recognize that students who are interested in this topic can take the course as an elective.

I have read the proposal for Specializations within the Computer Science major. While the numerical and scientific computation option could cause a marginal increase in enrollments in some Mathematics courses, the courses we are talking about could handle up to 10 students per year without the necessity of offering another section.

This proposal with 6 different specializations should not generate more than 10 students selecting the specialization that would have an impact on the Math Department. So I have no problem with this proposal and I support it.

Ron Czocho, Chairman
Mathematics Department
Rowan University
(856)-256-4845

My homepage: <http://www.rowan.edu/mars/depts/math/czocho/Homepage/homepage.html>

Dept. homepage: <http://www.rowan.edu/mars/depts/math/>

To: Math/Science Curriculum Committee
From: Jennifer Kay, Chair, Computer Science Curriculum Committee
Re: Course Consultations for Computer Science Proposals



Attached is a record of correspondence with

- John Schmalzel, Chair, Electrical & Computer Engineering, and
- Jooh Lee, Chair, MIS Department

Dr. Schmalzel & Dr. Lee were asked for consultations for computer science proposals on October 18th, 2000, and again on November 29th, 2000. Neither provided a consultation for any of the courses.

Dr. Martin Itzkowitz, chair, University Curriculum Committee, recommended that I provide you with a record of correspondence, which you will find attached.

To: schmalzel@rowan.edu, lee@rowan.edu
From: Jennifer Kay <kay@elvis.rowan.edu>
Subject: Course consultations
Cc: hartley@rowan.edu, hristesc@elvis.rowan.edu, baliga@rowan.edu
Bcc: kay@elvis.rowan.edu
Attached:

My apologies for sending this so late, we've been running to get everything organized.

We are going to be submitting 7 curriculum proposals this year, and we'd like your consultation on them.

The props are:

- 2 database programming proposals (one graduate, one undergraduate)
- A change to our major to reduce the number of credits to 120 from 123
- A proposal to add concentrations to our major (so students can get a degree in CS with a concentration in AI for example)
- 2 computer vision proposals (one grad, one undergrad)
- An undergraduate wireless networking course (the counterpart to the graduate course we already have on the books.

All of these proposals can be found at:
http://elvis.rowan.edu/~kay/course_props/

Again, sorry they're so late, and thanks for your help

-- Jennie Kay
CS Curriculum committee chair

X-Sender: kay@elvis.rowan.edu
X-Mailer: QUALCOMM Windows Eudora Version 4.3.1
Date: Wed, 18 Oct 2000 18:44:52 -0400
To: czochor@rowan.edu
From: Jennifer Kay <kay@elvis.rowan.edu>
Subject: Consultation request
Cc: hartley@rowan.edu, hristesc@elvis.rowan.edu, baliga@rowan.edu

Ron,

My apologies for getting this out to you so late. We were wondering if you could give us a consultation on our change of major proposal that you'll find at:

http://elvis.rowan.edu/~kay/course_props/major_change.pdf

Thanks!

-- Jennie

(CS curriculum committee chair)

Jennifer Kay
Rowan University
Computer Science Department

kay@elvis.rcwan.edu
<http://www.rowan.edu/~kay>

X-Mailer: Novell GroupWise Internet Agent 5.5.2.1
Date: Mon, 23 Oct 2000 13:45:06 -0400
From: "Jennifer S. Kay" <kay@rowan.edu>
To: <kay@elvis.rowan.edu>
Subject: Fwd: Course consultations-Delegated

>>> Schmalzel 10/23/00 13:44 >>>

ECE Team,

Please take a quick look at the slate (7) of CS course proposals. I would assume that you may have been contacted by the proposing faculty if they were seeking your opinion/input on certain topics...

jls



[TEXT27.htm](#)

Received: from cobain.rowan.edu
by groupwise.rowan.edu; Wed, 18 Oct 2000 18:49:30 -0400
Received: from elvis.rowan.edu (elvis.rowan.edu [150.250.64.69])
by cobain.rowan.edu (8.9.3/8.9.3) with ESMTTP id SAA10065;
Wed, 18 Oct 2000 18:49:33 -0400
Received: from jkay.elvis.rowan.edu (dhcp-139-238.rowan.edu [150.250.139.238])
by elvis.rowan.edu (8.9.3/8.9.3) with ESMTTP id SAA2854037;
Wed, 18 Oct 2000 18:49:06 -0400 (EDT)
Message-Id: <4.3.1.2.20001018183456.00b64480@elvis.rowan.edu>
X-Sender: kay@elvis.rowan.edu
X-Mailer: QUALCOMM Windows Eudora Version 4.3.1
Date: Wed, 18 Oct 2000 18:49:14 -0400
To: schmalzel@rowan.edu, lee@rowan.edu
From: Jennifer Kay <kay@elvis.rowan.edu>
Subject: Course consultations
Cc: hartley@rowan.edu, hristesc@elvis.rowan.edu, baliga@rowan.edu
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

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CS with a concentration in AI for example)
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All of these proposals can be found at:
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Again, sorry they're so late, and thanks for your help

-- Jennie Kay
CS Curriculum committee chair

Jennifer Kay
Rowan University
Computer Science Department

kay@elvis.rowan.edu
<http://www.rowan.edu/~kay>

To: schmalzel@rowan.edu, czochor@rowan.edu
From: Jennifer Kay <kay@elvis.rowan.edu>
Subject: Course consultations
Cc: hartley@rowan.edu, hristesc@elvis.rowan.edu, baliga@rowan.edu
Bcc:
Attached:

Hi,

I never heard back from you about our course consultation request. I assume this is because they're not terribly controversial. If you have comments, could you please get them to me asap.

Thanks,

-- Jennie

To: lee@rowan.edu
From: Jennifer Kay <kay@elvis.rowan.edu>
Subject: Course consultation request
Cc: hartley@rowan.edu, hristesc@elvis.rowan.edu, baliga@rowan.edu
Bcc:
Attached:

Hi,

I never heard back from you about our course consultation request. I assume this is because they're not terribly controversial. If you have comments, could you please get them to me asap.

Thanks,

-- Jennie

X-Mailer: Novell GroupWise Internet Agent 5.5.2.1
Date: Wed, 29 Nov 2000 17:40:26 -0500
From: "John L. Schmalzel" <Schmalzel@rowan.edu>
To: <kay@elvis.rowan.edu>
Cc: "Linda M. Head" <head@groupwise.rowan.edu>,
"Robert R. Krchnavek" <krchnavek@groupwise.rowan.edu>,
"Raul E. Ordonez" <ordonez@groupwise.rowan.edu>,
"Ravi Prakash Ramachandran" <ravi@groupwise.rowan.edu>,
"John L. Schmalzel" <Schmalzel@groupwise.rowan.edu>,
"Shreekanth A. Mandayam" <Shreek@groupwise.rowan.edu>,
"Xiao-Hua Yu" <xhyu@groupwise.rowan.edu>
Subject: Re: Course consultations



[TEXT75.htm](#)

Jennifer,

I fwd'd the list around to the faculty, but have yet to hear any/much feedback. I'll cc this to the ECE faculty for last-minute remarks.

Thanks!
jls

>>> Jennifer Kay <kay@elvis.rowan.edu> 11/29/00 12:56PM >>>

Hi,

I never heard back from you about our course consultation request. I assume this is because they're not terribly controversial. If you have comments, could you please get them to me asap.

Thanks,

-- Jennie

Jennifer Kay
Rowan University
Computer Science Department

kay@elvis.rowan.edu
<http://www.rowan.edu/~kay>

To: "John L. Schmalzel" <Schmalzel@rowan.edu>
From: Jennifer Kay <kay@elvis.rowan.edu>
Subject: Re: Course consultations
Cc:
Bcc:
Attached:

Thanks, John. Assuming they don't have any feedback, can you send me a quick "all ok" note.

-- Jennie

At 05:40 PM 11/29/00 -0500, you wrote:
Jennifer,

I fwd'd the list around to the faculty, but have yet to hear any/much feedback. I'll cc this to the ECE faculty for last-minute remarks.

Thanks!
jls