

4-19-1999

## Minor Changes in Physics Major and Computer Science Major

The College at Brockport, College Senate

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**BROCKPORT**

Faculty Senate  
State University of New York  
College at Brockport  
350 New Campus Drive  
Brockport, NY 14420-2925

**Resolution#20  
1998-99  
FACULTY SENATE**

TO: Dr. Paul Yu, College President

FROM: The Faculty Senate Meeting on: *April 19, 1999*

RE:      I. Formal Resolution (*Act of Determination*)  
     II. Recommendation (*Urging the Fitness of*)  
  X   III. Other, For your Information (*Notice, Request, Report, etc.*)

SUBJ: *Minor Changes in Physics Major and Computer Science Major*

Signed: *Thomas Bonner* Date Sent: *5/2/99*  
*(Thomas Bonner, Faculty Senate President)*



TO: The Faculty Senate

FROM: Dr. Paul Yu, College President

RE: I. Decision and Action Taken on Formal Resolution  
a. Accepted. Effective Date: *9/1/99 or next publication opportunity*  
b. Deferred for discussion with the Faculty Senate on     /    /      
c. Unacceptable for the reasons contained in the attached explanation

II, III.  
a. Received and acknowledged  
b. Comment: \_\_\_\_\_

DISTRIBUTION: *Administrative Staff - Please share with appropriate staff.*

Distribution Date: *6/3/99* Signed: *Paul Yu*  
*(President of the College)*

Resolution Disk: 9899-20: ayk

①

# **BROCKPORT**

State University of New York  
College at Brockport  
1 New Campus Drive  
Brockport, New York 14420-2971  
Department of Physics  
(716) 395-2182  
Fax: (716) 395-5605

March 25, 1999

Dr. Larry Kline, Chair,  
Biological Sciences  
CAMPUS

Dear Larry:

Physics has made the following change in the requirement for the major: **PHS 301, Mathematical Methods of Physics** replaces PHS 452, Applied Analysis in the "physics core."  
Copies of the course registration forms are enclosed.

Sincerely,

*Richard V. Mancuso*

Richard V. Mancuso  
Interim Chair.

RVM/pl  
enclosures

c: Charles Sommer

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15. In the space provided, describe:

- (1) Objectives
- (2) Outline of Course
- (3) Methods of Assessing Student Performance
- (4) Materials (Films, Reading, Etc.)
- (5) Additional work required of graduate level students if course is a 'swing-course'

(1) Objectives: The student shall be able to:

- A. demonstrate competence in the following topics in mathematics: infinite series, complex numbers, partial differentiation and multiple integrals, ordinary differential equations, matrices and determinants, vector analysis, tensors and coordinate transformations.
- B. have developed an awareness of how these mathematical tools are used in the physical sciences.
- C. analyze and solve problems using the techniques and concepts of such mathematical areas as calculus, differential equations, linear algebra, vector analysis and complex variable theory.

(2) Course Content:

- I. Infinite Series
- II. Complex Numbers
- III. Determinants and Matrices
- IV. Partial Derivatives and Multiple Integrals
- V. Vector Analysis
- VI. Ordinary Differential Equations
- VII. Coordinate Transformations

(3) Unit examinations, final exam, homework assignments.

(4) Text: Mathematical Methods in the Physical Sciences, 2nd ed., Boas.

|  |                          |
|--|--------------------------|
| Submitted by: <u>Edward J. Gucker</u>                | Date: <u>03/23/99</u>    |
| Chairperson's Approval: <u>Richard V. Mancini</u>    | Date: <u>24 March 99</u> |
| Dean's Approval: _____                               | Date: _____              |
| Director of General Education (if appropriate) _____ | Date: _____              |

Return to: \_\_\_\_\_  
OFFICE OF ACADEMIC AFFAIRS

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15. In the space provided, describe:

- (1) Objectives
- (2) Outline of Course
- (3) Methods of Assessing Student Performance
- (4) Materials (Films, Reading, Etc.)
- (5) Additional work required of graduate level students if course is a 'swing-course'

(1) Objectives: The student shall be able to:

- A. demonstrate competence in the following topics in mathematics: Fourier analysis, calculus of variations, special functions, partial differential equations, complex variable theory, integral transforms and elementary probability theory.
- B. have developed an awareness of how these tools are used in the physical sciences.
- C. analyze and solve problems using these techniques and concepts.

(2) Outline of Course:

- I. Fourier Series
- II. Calculus of Variations
- III. Gamma, Beta and Error Functions, and Elliptic Integrals
- IV. Series Solution of Differential Equations
- V. Partial Differential Equations
- VI. Functions of a Complex Variable
- VII. Integral Transforms
- VIII. Probability

(3) Methods of Assessing Student Performance:

Unit examinations, homework and a final examination.

(4) Text:

*Mathematical Methods in the Physical Sciences, 2nd Edition, Boas.*

Submitted by: Edward J. Gucker

Date: 03/23/99

Chairperson's Approval: Richard V. Moncur

Date: 24 March 99

Dean's Approval: \_\_\_\_\_

Date: \_\_\_\_\_

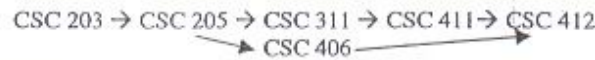
Director of General Education (if appropriate) \_\_\_\_\_

Date: \_\_\_\_\_

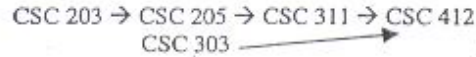
Return to: \_\_\_\_\_  
OFFICE OF ACADEMIC AFFAIRS

④

Before the recommended change:



After the change, the chain will reduce to:

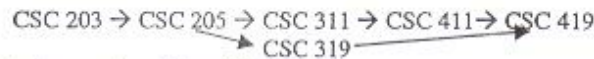


A shorter chain will help students to graduate on time.

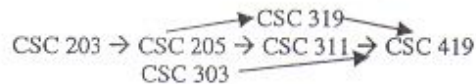
3. **CSC 419** (Computer Networks), an elective course in the AC track will **NO LONGER require** CSC 411 as a prerequisite. The new prerequisites for CSC 419 will be CSC 303, CSC 311 and CSC 319.

**Reason:** Once again this will shorten the length of the prerequisite chain by one:

Before the recommended change:



After the change, the chain will reduce to:



4. **MTH courses** will **NO LONGER** be allowed as **electives** in the **AC-Track** of the CSC major. As of now, **ONLY ONE** of MTH 461 (Mathematical Modeling I), MTH 462 (Mathematical Modeling II) or MTH 471 (Numerical Analysis) is allowed as an AC-track elective course.

**Reason:** The accrediting body, Computer Sciences Accreditation Commission (CSAC) requires:

- Minimum of 12 credits in the Sciences
- Minimum of 15 credits in Mathematics, but the total of Math and Science credits should be at least 30 credits
- Minimum 45 credits in Computer Science.

One of the above-mentioned MTH courses is currently allowed as a CS elective. As the requirements currently stand, they permit "double-dipping" by students. They can use the same MTH course to satisfy the math requirement AND the CS elective requirement. This would be a source of concern for CSAC (Computer Science Accreditation Commission) when we seek reaccreditation.

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(d) Science co-requisites (12 credits)

Two courses forming a two-semester sequence in a laboratory science for science or engineering majors. For example, PHS 201-202, CHM 205+206, BIO 201-202, ESC 211-311, GEL 101-302; and

Each remaining course must be a course in science or a course that enhances the student's abilities in the application of the scientific method. Each course must be a course for science or engineering majors or a course with a strong emphasis on quantitative methods.

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Total credits required

67

( Total credits including prerequisites CSC 120, MTH 281, MTH 201 = 76 )

**RESTRICTIONS ON CREDITS IN THE MAJOR - AC TRACK**

1. At most 3 credits from the following group of courses may be counted towards the major elective requirement: CSC 304, MTH 461, MTH 462, MTH 471, and any CSC course numbered 490 or above.
2. The student must take at least 30 credits in non-mathematics, non-science courses.
3. The student must take at least 15 credits in mathematics courses.
4. The student must take at least 30 credits in mathematics and science courses.
5. At least 18 of the credits used to satisfy the core or elective requirements in the major must be earned at SUNY Brockport.
6. A maximum of 6 credits can be earned by "credit by portfolio assessment," and a maximum of 6 credits can be earned by "departmental credit by examination."

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# AC-TRACK REQUIREMENTS (PROPOSED CHANGES)

## THE MAJOR IN COMPUTER SCIENCE

This section lists only the minimum requirements; students are encouraged to take computer science and mathematics courses beyond the minimum to deepen and broaden their expertise.

### The Major in Computer Science Advanced Computing Track (67 credits) (Accredited by the Computer Science Accreditation Commission)

#### Prerequisites to the AC Track

The first course in the program is CSC 203 (Fundamentals of Computer Science I). The prerequisites for this course are CSC 120 (Introduction to Computer Science) and MTH 122 (Pre-calculus), or equivalents by permission of the instructor. Students not having these prerequisite courses should plan on a preparatory semester in which to take them.

The major in computer science with the Advanced Computing (AC) track requires a minimum of 67 credits. For a major in Computer Science with the Advanced Computing (AC) track, a student must complete the following 67 credits of computer science, mathematics, and science courses with an average grade of C or better. In addition, the grade for each of CSC 203, CSC 205, and CSC 311 must be C or better. Other restrictions apply; see "Restrictions on Credits in the Major," below.

| (a) Core courses (37 credits)               | Credits |
|---|---------|
| CSC 203 Fundamentals of Computer Science I  | 4       |
| CSC 205 Fundamentals of Computer Science II | 4       |
| CSC 303 Digital Logic and Computer Design   | 3       |
| CSC 311 Assembly Language Programming       | 4       |
| CSC 401 Theory of Programming Languages     | 4       |
| CSC 406 Advanced Data Structures            | 3       |
| CSC 411 Computer Architecture               | 3       |
| CSC 412 Operating Systems                   | 3       |
| CSC 427 Software Engineering                | 3       |
| CSC 483 Theory of Computation               | 3       |
| CSC 486 Junior/Senior Seminar               | 3       |

course title changes to "Computer Organization and Assembly Language Programming"

#### (b) Elective courses (9 credits)

↗ deleted

300- or 400-level CSC courses ~~(one mathematics course allowed from the set MTH 461, MTH 462, MTH 474)~~ selected under advisement. See "Restrictions," below. 9

#### (c) Mathematics corequisite (9 credits)

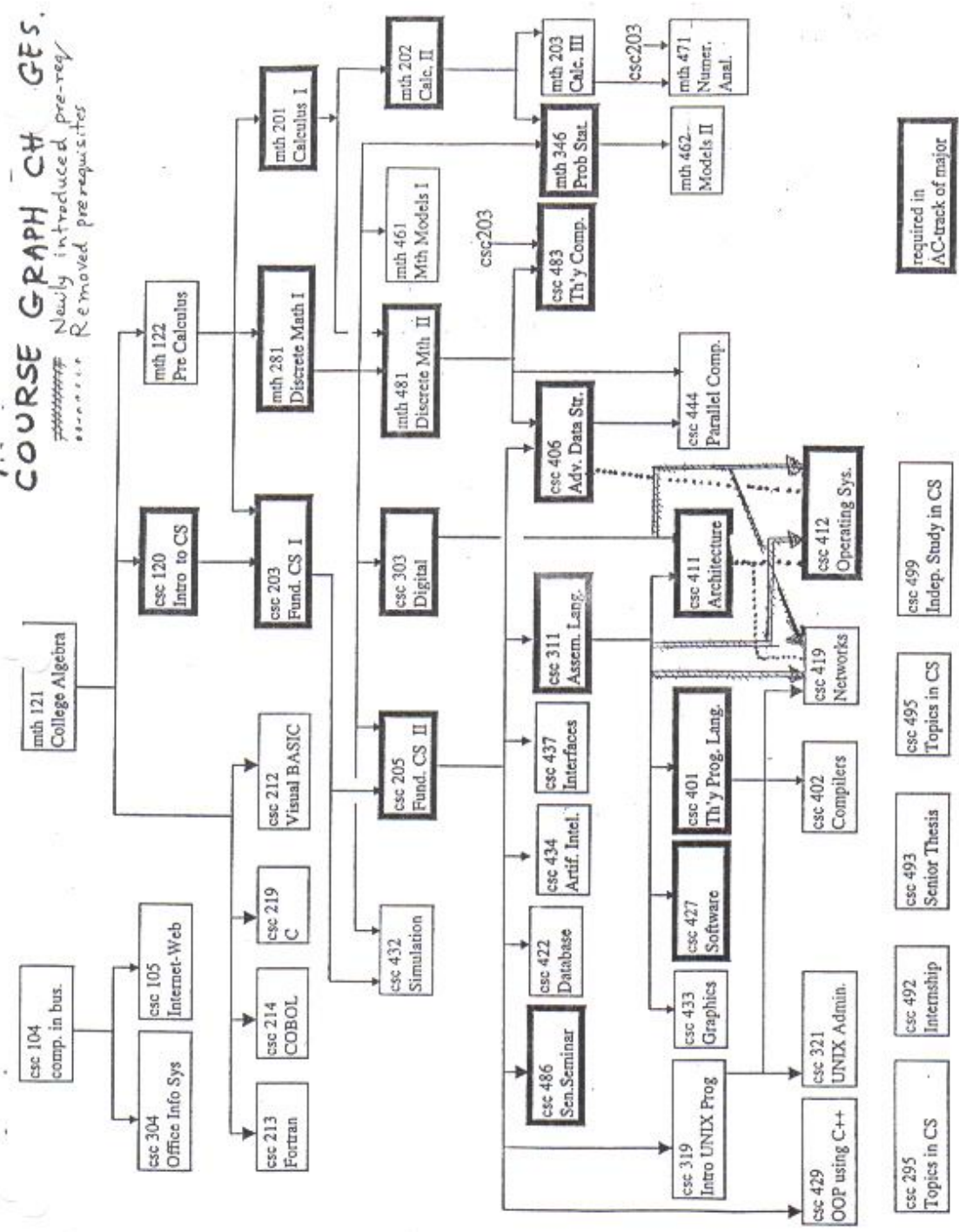
|                                      |   |
|--------------------------------------|---|
| MTH 481 Discrete Mathematics II      | 3 |
| MTH 202 Calculus II                  | 3 |
| MTH 346 Probability and Statistics I | 3 |

Math Prerequisites:  
MTH 281 Discrete Mathematics I (3 credits)  
MTH 201 Calculus I (3 credits)

prerequisite changes are indicated in graph ①



**COURSE GRAPH CH GES.**  
 Newly introduced pre-req  
 Removed prerequisites



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