MEMORANDUM

TO: Stephen Halperin
Dean, College of Computer, Mathematical, and Physical Sciences

FROM: Phyllis Peres
Associate Provost for Academic Planning and Programs

SUBJECT: REVISED Proposal to modify the undergraduate curriculum in Mathematics (PCC log no. 05034)

At its meeting on February 17, the Senate Committee on Programs, Curricula, and Courses approved your proposal to modify the undergraduate curriculum in Mathematics. Approval paperwork was processed on the understanding that there was one outstanding minor item of documentation collection associated with the addition of BGMT 343 as an approved course in the Mathematics curriculum.

It has since been determined that this is a more complicated issue. Consequently, the Mathematics Department has asked to withdraw the proposed change and leave that particular section of the existing curriculum untouched. Accordingly, please find attached a corrected copy of the proposal that does not make any mention of BGMT 343.

/cwr
Enclosure

cc: James Baeder, Chair, Senate PCC
Sarah Bauder, Student Financial Aid
Mary Giles, University Senate
Barbara Hope, Data Administration
Anne Turkos, Archives
Linda Yokoi, Office of the Registrar
Kathy McAdams, Undergraduate Studies
Deborah Reid Bryant, College of Computer, Mathematical and Physical Sciences
THE UNIVERSITY OF MARYLAND, COLLEGE PARK
PROGRAM/CURRICULUM PROPOSAL

DIRECTIONS:
- Provide one form with original approval signatures in lines 1 - 4 for each proposed action. Keep this form to one page in length.
- Early consultation with the Office of the Associate Provost for Academic Planning & Programs is strongly recommended if there are questions or concerns, particularly with new programs. Please submit the signed form to Claudia Rector, Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus.
- Please email the rest of the proposal as an MSWord attachment to pcc-submissions@umd.edu.

DATE SUBMITTED_11-17-05

PCC LOG NO. 0 5 0 3 4

COLLEGE/SCHOOL CMPS

DEPARTMENT/PROGRAM Mathematics

PROPOSED ACTION (A separate form for each) ADD_____ DELETE_______ CHANGE____x____

DESCRIPTION (Provide a succinct account of the proposed action. Details should be provided in an attachment. Provide old and new sample programs for curriculum changes.)
The changes involve mainly courses that no longer exist in mathematics, and alterations in supporting sequences for math majors from other departments because of changes in their course offerings.

JUSTIFICATION/REASONS/RESOURCES (Briefly explain the reason for the proposed action. Identify the source of new resources that may be required. Details should be provided in an attachment.)
The changes are requested in order to have consistency between, on the one hand, existing curricula in mathematics and other disciplines for the supporting sequences, and on the other hand, approved items in the Undergraduate Catalogue.

APPROVAL SIGNATURES

1. Department Committee Chair Denny Gulick 11-17-05
2. Department Chair Patrick Fitzpatrick 11-17-05
3. College/School PCC Chair 11-30-05
4. Dean 11-30-05
5. Dean of the Graduate School (if required)
6. Chair, Senate PCC 2-17-06
7. Chair of Senate
8. Vice President for Academic Affairs & Provost 2/20/06

The text below reflects exact changes proposed for the Undergraduate Catalog description of math major requirements (pp. 134-135 in the 2005-06 Undergraduate Catalog). Old items to be deleted are in italics; additions are in bold – underlined in each case.

TRADITIONAL TRACK (TT)
3(c) MATH 410 (completion of MATH 350-351 exempts the student from this requirement; students receive credit for two 400-level [see (e) below] courses) Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.

3(d) A one-year sequence which develops a particular area of mathematics in depth, chosen from the following list:
   (i) MATH 410-411
   (ii) MATH 410-412
   (iii) MATH 403-404
   (iv) MATH 403-405
   (v) MATH 446-447
   (vi) STAT 410-420

   Note: 3(d) (vi) becomes 3(d) (v)

3(e) The remaining 400-level MATH/AMSC/STAT courses are electives, but cannot include any of: MATH 400, 461, 478, 480-484, or STAT 464. Also, students with a strong interest in applied mathematics may, with the approval of the Undergraduate Office, substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper-level elective course.

4. One course from CMSC 106, 114, 131, 132, ENAE 202, ENEE 114, or PHYS 165. A student may be exempt from this requirement if he or she can demonstrate adequate programming knowledge from prior course work experience.

5. One of the following supporting three-course sequences. These are intended to broaden the student’s mathematical experience. Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on the list.
   (a) (i) PHYS 161-262-263
       (ii) PHYS 161-260/1-270/1
       (iii) PHYS 171-272-273

       Note: (ii) and (iii) become (i) and (ii), respectively.

   (b) ENES 102 PHYS 161, ENES 220

   (c) (i) CMSC 114-214 and one of CMSC 311, 330
(ii) CMSC 114-250-351

(i) CMSC 132-212-250

(d) Chemistry: Please check with the Department advisor for updated information.

(d) (i) CHEM 146/7, 237, 247
(ii) CHEM 131/2, 231/2, 241/2

(e) ECON 200-201 (previously ECON 201-203), and one of ECON 305 or 306

(f) BMGT 220-221-340

SECONDARY EDUCATION TRACK (SET)

3(a) MATH 410 (completion of MATH 350-351 exempts the student from this requirement; students receive credit for two 400-level courses.) Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.

(b) MATH 402 or MATH 403

(c) MATH 430

(d) STAT 400 or STAT 410

(e) At least one course from MATH 406, 445, 446, 447, 450, 456, or 475.

The remaining 400-level MATH/AMSC/STAT courses are electives, but cannot include any of: MATH 400, 461, 478, 480-484, or STAT 464.

4. One course from CMSC 106, 114, 131, 132, ENAE 202, ENEE 114 or PHYS 165. Student may be exempt from this requirement if he or she can demonstrate adequate programming knowledge from prior course or work experience.

5. EDCI 450 and 451*

6. One of the following supporting two course sequences. These are intended to broaden the student’s mathematical experience.

(a) Chemistry: Please check with the Department advisor for updated information.

(a) CHEM 131/2 and 231/2

(b) PHYS 221 and 222

(c) PHYS 161 and 262

(e) PHYS 161-260/1

(d) BSCI 105 and 106

(e) ASTR 120 and 121

(f) METO 200 and 201, and any 400 level METO course

(g) GEOL 100 and 110, and one of GEOL 322, 340, 341, 375

Note: Then the new (d) – (g) are the old (d) – (h)

STATISTICS TRACK (ST)
3. Eight additional courses, at least four of which must be taken at College Park. The eight courses are prescribed as follows:
   (a) One course from MATH 410 and 350. Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.
   (b) One course from AMSC 460 and 466
   (c) One course from MATH 401 and 405
   (d) STAT 410
   (e) One course from STAT 401 and 420
   (f) STAT 430
   (g) Two additional courses from the following list:
       (i) Any 400-level or higher STAT courses except STAT 464
       (ii) MATH 351, 411, 412, 414, 424, 464
       (iii) AMSC 477
       (iv) BIOM 402

4. One course from CMSC 106, 114, 131, 132, ENAE 202, ENEE 114 or PHYS 165. Student may be exempt from this requirement if he or she can demonstrate adequate programming knowledge from prior course or work experience.

Commentary

All changes are the result of curricular changes within the Mathematics Department and other departments, and are requested in order to update the Undergraduate Catalogue.

1. MATH 350-351 have not been offered for several years (having been supplanted by MATH 340-341), and are not in the catalogue. Thus references to MATH 350-351 need to be deleted in TT 3(c), SET 3(a), ST 3(a) and ST 3(g).

2. MATH 447 is no longer in the catalogue, and has not been given for many years. Thus it (and thus the one-year sequence MATH 446-447) needs to be dropped from TT 3d(v), and MATH 447 needs to be dropped from SET 3(e).

3. New courses MATH 480, 481, 482, 483, 484 are in process, with MATH 480 being offered in Fall 2005. These courses are part of the curriculum of the new Montgomery County Middle School Masters Program, a joint effort of the College of Education and the Mathematics Department. These courses do not have the topical coverage appropriate for Math Majors. Thus these need to be excluded, along with MATH 400, 461, 478, STAT 464, in TT 3(e), and in the sentence preceding 4 in SET.

4. ENAE 202 is "Aerospace Computing," which includes (among other things) programming techniques in C++ and Matlab, and thus should qualify as an alternative to the other courses in TT 4, SET 4, and ST 4.

5. PHYS 165 has already been included in TT 4 and in SET 4, but was accidentally omitted in ST 4 until now. It needs to be included in ST 4.
6. Physics, Chemistry, and Computer Science have altered their programs. The requested changes to the supporting sequence changes for those departments reflect such changes – in TT and SET.