February 20, 2006

MEMORANDUM

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

FROM: Phyllis Peres
      Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to modify the curriculum in Meteorology Physics
          (PCC log nos. 05022 and 05033)

At its meeting on February 17, the Senate Committee on Programs, Curricula, and Courses approved your proposals to modify the undergraduate curriculum in Meteorology Physics. Copies of the approved proposals are enclosed.

The changes are effective in Fall 2006. The College should ensure that the new requirements are fully described in the Undergraduate Catalog and in all relevant descriptive materials, and that all advisors are informed.

/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, Records & Registrations
    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 November 28, 2005

PCC LOG NO. 05033

COLLEGE/SCHOOL CMPS

DEPARTMENT/PROGRAM PHYS

PROPOSED ACTION (A separate form for each) ADD ___ DELETE ___ CHANGE ___

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.)
Under the Meteorology Physics Area of Concentration, students may replace the PHYS401-402 (Quantum Physics I and II) sequence with PHYS406: Optics and PHYS420: Principles of Modern Physics. The Physics Department proposes that this "replacement" option be expanded from PHYS406 and PHYS420 to a choice of two courses from the following: PHYS405: Advanced Experiments, PHYS406: Optics, PHYS420: Principles of Modern Physics, PHYS410: Classical Mechanics and PHYS411: Intermediate Electricity and Magnetism.

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 Physics Department has not offered PHYS406: Optics for over five years. This has essentially left the Meteorology Physics majors with no alternative to the PHYS401-402 sequence. The Atmospheric and Oceanic Science Department agrees that the expansion as stated above is reasonable.

APPROVAL SIGNATURES

Date
1. Department Committee Chair
   Victor M. Yakovenko 11/28/05
2. Department Chair
3. College/School PCC Chair
4. Dean
   Charles A. Bogart 11/30/05
5. Dean of the Graduate School (if required)
6. Chair, Senate PCC
   James D. Freeden 2/17/06
7. Chair of Senate
8. Vice President for Academic Affairs & Provost
   William Rein 3/20/06

VPAAP 8-05
The text below reflects exact changes proposed for the Undergraduate Catalog description of Meteorology Physics requirements (p. 146 in the 2005-06 Undergraduate Catalog). Old items to be deleted are in *italics*; additions are in **bold** – underlined in each case.

**Description of Proposed Program Change**


### Meteorology Physics Area of Concentration

#### Current Catalog Entry

Upper-level and supporting courses for Meteorology Physics area of concentration

- CHEM 103—General Chemistry I 4
- CHEM 113—General Chemistry II 4
- MATH 462—Partial Differential Equations for Scientists and Engineers 3
- METO 431—Meteorology for Scientists and Engineers I 3
- METO 432—Meteorology for Scientists and Engineers II 3
- METO 434—Air Pollution 3
- PHYS 375—Experimental Physics III: Electromagnetic Waves, Optics 3
- PHYS 401—Quantum Physics I 4
- PHYS 402—Quantum Physics II 4
- PHYS 404—Introduction to Statistical Thermodynamics 3

[In the Meteorology Physics area of concentration the Physics 401-402 sequence may be replaced by PHYS 420—Principles of Modern Physics (3) and PHYS 406—Optics (3)]

#### Proposed Catalog Entry

Upper-level and supporting courses for Meteorology Physics area of concentration

- CHEM 103—General Chemistry I 4
- CHEM 113—General Chemistry II 4
- CHEM 135/136—Chemistry for Engineers/Lab I 4
- CHEM 231/232—Organic Chemistry/Lab I 4
- MATH 462—Partial Differential Equations for Scientists and Engineers 3
- METO 431—Meteorology for Scientists and Engineers I 3
- METO 432—Meteorology for Scientists and Engineers II 3
- METO 434—Air Pollution 3
- PHYS 375—Experimental Physics III: Electromagnetic Waves, Optics 3
- PHYS 401—Quantum Physics I 4
- PHYS 402—Quantum Physics II 4
- PHYS 404—Introduction to Statistical Thermodynamics 3

[In the Meteorology Physics area of concentration the Physics 401-402 sequence may be replaced by two of the following courses: PHYS 405—Advanced Experiments(3), PHYS 406—Optics (3), PHYS410: Classical Mechanics (4), PHYS411: Intermediate Electricity and Magnetism (4), and PHYS 420—Principles of Modern Physics.]

Note: the changes to the CHEM course requirements shown above are addressed in a separate proposal.

#### Commentary
1. PHYS 406 has not been offered for over five years. As a result, students pursuing the Meteorology Physics area of concentration have no option but to take PHYS 401 and 402. Leaving this as the only option, makes the program more rigid than originally intended. Expanding the options for replacing PHYS 401 and 402 as noted above provides these students with flexibility depending on their specific interests in the field of meteorology.

Subject: Re: changes to METO areas of concentration
From: Thomas Gleason <tgleason@umd.edu>
Date: Mon, 03 Oct 2005 13:51:50 -0400
To: Russell Dickerson <russ@atmos.umd.edu>

Dear Tom:

I agree that we should encourage the METO focused Phys Sci students to take CHEM 135/136 followed by CHEM 231/232; if they have done 131 that is ok too.

The option of two of five 400-level PHYS courses is also good.

Russ

>> Physics-Meteorology majors are required to choose between two upper-level options:
>> Option 1 - PHYS401 (Quantum Mechanics I) and PHYS402 (Quantum Mechanics II)
>> Option 2 - PHYS406 (Optics) and PHYS420 (Modern Physics for Scientists & Engineers)

>> We have not offered PHYS406 for at least 5 years, so we would like to alter Option 2 to

>>allow students to choose two courses from the following:
>>
>> PHYS405 Advanced Experiments
>> PHYS406 Optics (in case we offer it again)
>> PHYS410 Classical Mechanics
>> PHYS411 Intermediate E&M
>> PHYS420 Modern Physics for Scientists & Engineers

>> Let me know if you think this change is acceptable for the PHYS-METO major.

>>
>> Best regards,

>>
>> Tom Gleason

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