

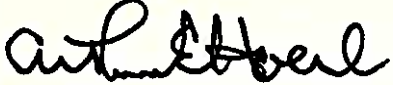
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE
19711

UNIVERSITY FACULTY SENATE
303 HULLIHEN HALL
PHONE: 302-738-2829

November 26, 1979

MEMORANDUM

TO: All Faculty Members

FROM: Arthur E. Hoerl, Vice President 
University Faculty Senate

SUBJECT: Regular Faculty Meeting, December 3, 1979

In accordance with Section IV, paragraph 6 of the Constitution, the regular meeting of the University Faculty Senate will be held on Monday, December 3, 1979 at 4:00 p.m. in room 110 Memorial Hall.

AGENDA

- I. Adoption of the Agenda.
- II. Approval of the Minutes of the regular Senate meeting of November 5, 1979.
- III. Remarks by President Trabant and/or Provost Campbell.
- IV. Announcements - Senate President Smith.
- V. Old Business
 - A. Recommendations from the Committee on Promotions and Tenure (H. Reynolds, chair) for adoption of a revised statement on Promotion Policies (Attachment 1) and deletion of a section of the Faculty Handbook (Attachment 2).

RESOLVED, that the University Faculty Senate adopts the revised statement on Promotion Policies for inclusion in the Faculty Handbook as section III-K;
and

RESOLVED, that present Section III-F be deleted from the Faculty Handbook.

- VI. New Business
 - A. Request from the Committee on Committees (H. Kingsbury, chair) for confirmation of a Senate committee appointment:
Physical Planning and Utilization: Ronald Rainey, chair.

- B. Interim report of the ad hoc Committee to Evaluate the President of the University (J. Olson, chair).
- C. Recommendation from the Coordinating Committee on Education (J. O'Neill, chair) for approval of a revised undergraduate curriculum for the College of Nursing (Attachment 3).

RESOLVED, that the revised curriculum for the undergraduate College of Nursing program is approved beginning September, 1980.

- D. Recommendation from the Coordinating Committee on Education (J. O'Neill, chair) for approval of a Ph.D. program in Applied Sciences-Climatology (Attachment 4). (Note: additional material available in Senate Office.)

RESOLVED, that provisional approval for the Ph.D. program in Applied Sciences-Climatology is granted for a four-year period beginning September, 1980, allowing for a final review during Spring, 1984.

- E. Such items as may come before the Senate. (No motion introduced at this time may be acted upon until the next meeting of the Senate.)

AEH/b

- Attachments:
- 1. Revised Statement on Promotion Policies
 - 2. Section III-F, Faculty Handbook
 - 3. Revised undergraduate curriculum, Nursing
 - 4. Ph.D. program, Applied Sciences-Climatology

COMMITTEE ACTIVITIES

The following issues are presently before Senate committees. Your comments may be addressed to the committee chairpersons, or to the Senate Office for forwarding to the committees.

Academic Ceremonies

Choice of a commencement speaker

Beverage Alcohol

Restructuring of committee membership

Committee on Committees

Change of designated membership of Committee on Undergraduate Records and Certification

Change of designated membership of Committee on Undergraduate Studies

Designation of chairs of Computer, Library, and Instructional Resources

Committees as members of the Coordinating Committee on Education

Study of membership of Committee to Regulate the Use of Beverage Alcohol

Faculty Welfare and Privileges

The proportion of teaching done by part-time appointees

The procedures by which revisions may be made in the Faculty Handbook

The contents and accessibility of faculty personnel files

The Faculty Handbook statement on conflict of interest

The Faculty Handbook statement on disruptive behavior

Graduate Studies

Proposal for a Ph.D. degree program in Linguistics

Proposal to amend doctoral candidates' committee structure

International Studies

Investigation of University admission policies and restrictions for admission of undergraduate foreign students

Library

Report of the Library Consultant (Dr. Kenneth Toombs) concerning expansion of present building, remote storage, compact storage, branch libraries, staff, and automation

Library policies regarding extended loan of items to research assistants acting for faculty members and of extended loan of U.S. documents

Promotion and Tenure

Revision of Section K of the Faculty Handbook pertaining to the committee's role in promotion and tenure decisions

Clarification of the "mandatory review" policy for assistant professors in their sixth year

Study of the evaluation of teaching as part of the promotion process

Revised criteria in various departments

Procedures and ground rules for reviewing dossiers in 1980

Undergraduate Studies

Pass/Fail system

Supervised study

Grading system

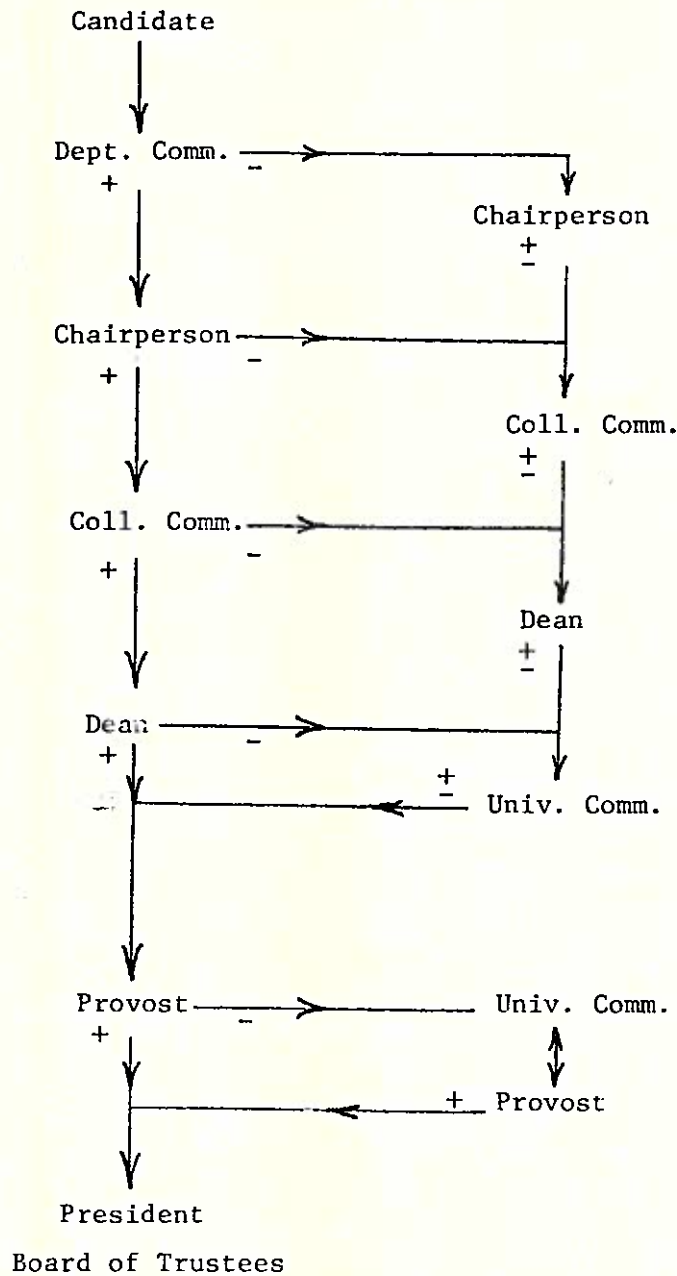


Figure K.1 Decision flow chart for promotion review. The candidate may withdraw the application at any level. Decisions to recommend promotion are shown as "+", those against promotion as "-".

1 K: PROMOTION POLICY

2 Research and publication are a significant part of each faculty
3 member's total contribution as a member of the academic community.
4 Faculty members must be engaged in some form of creative activity
5 in their academic fields and it is expected that creative activity
6 will be evidenced by publication, which not only signifies the
7 completion of scholarly inquiry but makes it available to other
8 scholars. The number and frequency of publications will vary
9 with the individual, the field of study, and the proportion of
10 time devoted to research; however, no faculty member can be
11 excused from research and its publication on the grounds that all
12 available time is devoted to other activities.

13
14 Conversely, teaching, advising, committee responsibilities, and
15 community service are not to be neglected on the ground that research
16 and publication have a higher priority. Each faculty member is
17 expected to make a balanced contribution to the University.

18
19 A successful promotion program must further the over-all
20 competency of the University, the College, and the Department;
21 and must also be a positive and sustaining force in the scholarly
22 development of the individual faculty member. To assure these ends,
23 the standards used to evaluate a faculty member's accomplishments
24 must be clearly defined, published, and fairly applied. The
25 procedures described in this Section and summarized in the flow
26 chart (Fig. K.1) have evolved to assure as well as possible both
27 the individual's welfare and development, and the continued growth
28 toward excellence of the University.

1 In overview, these procedures put the greatest burden on the
2 smallest unit: the department (or the College or Division where
3 there are no departments). It is the department which must decide,
4 define, and apply its expectations of the accomplishments of its
5 members. Chairpersons, College committees, Deans or Directors,
6 the University Committee on Promotions and Tenure, and the Provost
7 review the standards, and review each application of them, further
8 to assure that both individual and University are well served. The
9 procedures are time-consuming, even cumbersome; but the balance
10 is fragile, and upon its maintenance depend the futures of both
11 individual and institution.

12
13 A. CANDIDATE'S RESPONSIBILITIES

14 It is the responsibility of the candidate to present the best
15 possible case for promotion in the preparation of the dossier.
16 The purpose of the dossier is to persuade all who review it that
17 it unmistakably shows that the standards for promotion published
18 by the department have been met or exceeded. The preparation
19 of the dossier is more fully discussed below, in K-G; the
20 candidate should be thoroughly familiar with that discussion,
21 with the Faculty Handbook description of evaluation in III-I,
22 and with the criteria for promotion stated by the department.

23
24 B. DEPARTMENTAL RESPONSIBILITIES

25 The department, consisting as it does of scholars in the same
26 discipline as the candidate for promotion, must bear the major burden
27 of defining standards, specifying the procedures to be followed in
28 deciding whether the standards are met, and judging the credentials

1 submitted in support of each application for promotion. It must
 2 also be responsible to make sure that both standards and procedures
 3 are similar to those of other units of the University. Unless the
 4 department is scrupulous in meeting these responsibilities mischief
 5 to individual, department, and University is inevitable. Minimum
 6 requirements for the satisfactory discharge of departmental
 7 responsibilities are discussed in detail below.

- 8
- 9 1. Promotion criteria, policies, and procedures must be
 10 written and distributed to all members of the department
 11 or unit, and filed with the University Faculty Senate
 12 through its Committee on Promotions and Tenure. The
 13 statements will be available on request in the Senate
 14 office. Changes in statements already adopted, or new state-
 15 ments necessitated by a change in departmental goals or by
 16 reorganization, must be reviewed and approved by both the
 17 University Committee on Promotions and Tenure and by the
 18 Provost, before they are put into effect. When an amendment to
 19 existing statements is proposed, any changes must maintain
 20 the legitimate expectations for advancement of the present
 21 members of the department.

22 Proposed new statements or proposed amendments to old
 23 ones should be submitted by the unit to the University
 24 Committee on Promotions and Tenure, and to the Provost.
 25 They will review the proposals for compliance with the
 26 general policy discussed in this section, and will suggest
 27 revision if required. The Committee and the Provost will
 28 inform the department and each other of such suggested

1 revisions, and will if necessary consult jointly. When
2 the statement is approved, both Provost and the chairperson
3 of the Committee will sign the statement as approved, and
4 indicate the date of approval.
5

6 2. Departmental procedures in establishing and applying criteria
7 must be democratic. While the nature and extent of democracy
8 in personnel procedures will certainly vary among departments,
9 this standard is not met if the chairperson (or dean or
10 director) alone makes the decisions, or if they are made by
11 a committee appointed by the chairperson, or if the recom-
12 mendations of a faculty committee are not forwarded when they
13 differ from the chairperson's.
14

15 3. The specific criteria upon which recommendations are based
16 must be clearly set forth in the formal statement of promotion
17 policies and procedures of the department. The qualities,
18 characteristics, attainments, and behaviors taken into account
19 by the department in making promotion decisions must be
20 explicitly enumerated. The kinds of evidence by which the
21 attainment of the stated criteria is to be judged must also
22 be specified in the published and distributed statement, as
23 must the weight given the various criteria and the kinds
24 of evidence to be submitted in support of their having been
25 met. The statement of criteria for promotion must be
26 unambiguously interpretable by review committees not privy
27 to the intentions of its authors.
28

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

4. The conclusions by the department committee concerning an application for promotion must be given in writing to the candidate, and signed by all members of the reviewing group. When the committee of the department is unable to recommend the promotion, the future successful development of the candidate's career requires a full explanation of the deficiencies in the evidence of accomplishment presented in support of the application. Signed minority opinions shall be forwarded as appendicies to the committee's recommendations.

5. The recommendations of the department committee shall be forwarded to the department chairperson, who will review the evidence submitted by the candidate, the report of the committee, and the stated criteria, and shall make a recommendation supporting or failing to support the candidacy. If the chairperson's decision is against promotion, a full and specific explanation of the deficiencies leading to that conclusion shall be given in writing to the candidate and to the department committee. Reasons for a negative decision by the chairperson must, like those of the department committee, be sufficiently specific to enable the candidate to identify and try to remedy whatever deficiencies are cited. Such generalizations as, "I consider the promotion to be premature at this time," fail to meet this test; if the faculty member's growth as a scholar is to continue, the details of perceived shortcomings must be clearly stated.

1 6. If department committee and chairperson agree in recommending
2 promotion, or if either or both recommend against promotion
3 but the candidate chooses not to withdraw it, the application
4 goes forward to the college committee and the dean, together
5 with the committee's and the chairperson's recommendations.

6 Note: In colleges, schools, or divisions without departments, all
7 of the requirements for departmental action devolve upon the college
8 or division.

9
10 C. PROMOTION PROCEDURES AT THE COLLEGE LEVEL

11 To assure that candidates for promotion receive the benefits of
12 approximately equal treatment in all colleges and divisions of the
13 University, the following procedures will be followed by every
14 college or division.

- 15
16 1. A Promotion and Tenure Committee, selected by an elected
17 faculty group or by the faculty of the college, shall
18 review and make recommendations to the Dean or Director
19 concerning all applicants for promotion within the college.
20 (In colleges, schools, or divisions lacking departments, this
21 review will be the initial peer evaluation, and will assume the
22 responsibilities described for the department in K-B above.)
23 Where recommendations come to the college committee from
24 departments and with chairperson's recommendation, the
25 primary responsibility of the college committee is to ensure
26 compliance with the written departmental criteria. The
27 committee of the college cannot expect to have representatives
28 of all disciplines and specialities in the college; its

1 role is therefore quite different from that of the departmental
2 committee, all or most of whom will be themselves experts in
3 the candidate's discipline. The college committee must
4 exercise its best judgment to ensure that fair, unbiased,
5 and thorough evaluations of the candidate have been made by
6 department committee and chairperson.

7
8 2. The results of the review by the college committee shall be
9 promptly reported in writing to the candidate, and forwarded
10 with the candidate's dossier for review and recommendation
11 by the Dean or Director. If the committee is unable to
12 support the recommendation for promotion, the same require-
13 ments for specificity of reasons described in K-B-4 (above)
14 shall apply: the full identification of the candidate's
15 shortcomings is necessary to their alleviation.

16
17 3. The Dean or Director shall review the adequacy of the
18 dossier in meeting the criteria, and shall either endorse
19 or recommend against the promotion, and shall notify the
20 candidate promptly of the decision. If the recommendation
21 is not supported, usefully clear and specific reasons must
22 be stated. The Dean or Director shall also forward the
23 dossiers and statements of action on them: (a) to the
24 Provost, if department committee, chairperson, college
25 committee, and Dean all concur in supporting the promotion;
26 or (b) to the University Committee on Promotions and Tenure
27 if there is at least one negative recommendation by department
28 committee, chairperson, college committee, or Dean.

- 1 4. The candidate may elect to withdraw from candidacy at any
2 step in the department and college review procedures.
3

4 D. THE UNIVERSITY COMMITTEE ON PROMOTIONS AND TENURE

5 This Committee serves two major functions: first, it assists
6 departments (or colleges or divisions) in developing or acceptably
7 revising their statements of criteria for promotion; and, second,
8 it makes formal recommendations to and consults with the Provost
9 concerning any candidacy which has been adversely judged by
10 department committee, chairperson, college committee, Dean, or
11 Provost.

- 12
- 13 1. The Committee shall receive, consider, and consult with the
14 Provost and with the initiating unit on any proposed new
15 statement of criteria for promotion, or on any proposed
16 changes in existing statements. No statement or revision
17 shall become effective until approved by the Committee and
18 the Provost (see also K-B-1, above).

- 19
- 20 2. New or amended statements of criteria must be consonant with
21 those of other units of the University in two respects:

- 22 a. There should be procedural equivalency for all units.

23 Both the kinds of evidence required, and the methods
24 of gathering and evaluating it, should be similar
25 throughout the University. The Committee will give
26 whatever help it can in maintaining such similarity.

- 27 b. The titles of the ranks of faculty members should also
28 have approximately the same meaning throughout the

1 University. Toward that end, the following minimum
2 requirements defining the ranks may serve as guidelines:
3 Instructor. The Master's degree (or its equivalent);
4 satisfactory teaching ability; high standards of
5 scholarship; and clear promise of development in teaching,
6 scholarship, or productive activity.

7 Assistant Professor. The Ph.D. degree (or its equi-
8 valent); demonstrated ability as a teacher (except in cases
9 of research professorships); record of scholarly accomplish-
10 ment; and evidence of continuous development.

11 Associate Professor. All requirements for Assistant
12 Professor, and an established reputation in scholarship,
13 artistic creation, or other scholastic or professional
14 activity.

15 Professor. All requirements of lower ranks, and: the
16 marked capacity for the direction of research; scholar-
17 ship of more than local recognition; consistent contribu-
18 tion to chosen field of learning; and an established
19 reputation as a teacher (except in cases of research
20 professorship or other appointment not requiring teaching).

- 21
- 22 3. The Committee shall receive from the Deans or Directors
23 the full dossier of any candidate whose promotion has been
24 voted against by a majority of any review committee, or
25 has received a negative administrative recommendation
26 (see also K-C-3 above). It shall review all such applica-
27 tions, and shall attempt to resolve conflicts and disagree-
28 ments. Additional evidence may be added to the dossier for

1 consideration, as long as such evidence is appropriate to
2 the procedures specified in the unit's statement of criteria.
3 Following this review, the Committee will forward the dossier
4 to the Provost, together with its recommendations, and will
5 notify the candidate, the department chairperson, and the
6 Dean or Director of its recommendation and the reasons for it.
7

- 8 4. In the event that the Provost is unable to support a candidate
9 who has been recommended for promotion by department com-
10 mittee, department chairperson, college committee, and Dean
11 or Director, the Provost shall submit the candidate's dossier
12 to the Committee for its review and recommendation.
13
- 14 5. When the Provost rejects recommendations made by the Committee,
15 he will report to it the reasons for his rejection, and will
16 meet with the Committee to try to resolve the disagreement.
17
- 18 6. In reviewing applications for promotion, the Committee must
19 act as professional, i.e., professorial, judges of the
20 relevance and appropriateness of the credentials offered to
21 support the recommendation while abstaining from judgments
22 of the content or importance of the candidate's body of
23 research, scholarship, or creative activity. Those latter
24 judgments are more appropriately made by peers in the
25 candidate's discipline. The Committee would not, for an
26 extreme example, attempt to judge the substance of Einstein's
27 general theory or its importance to the future of physical
28 science; it would judge whether the substance and importance

1 of that theory had been appropriately evaluated by appropriate
2 people, in accordance with the criteria stated by the Department
3 of Physics. The Committee must exercise its best professional
4 judgment as to the adequacy of the evidence in meeting the
5 unit's published criteria, but must assiduously avoid letting
6 its own affections or disaffections concerning the substance
7 or importance of the individual's contributions sway its
8 judgment. In this way it will protect the interests of both
9 the candidate and the University.

- 10
11 7. The Committee, in the course of its reviews of applications
12 and the criteria statements applicable to them, may discover
13 deficiencies in the statements. It shall communicate such
14 inadequacies to the Provost and to the unit, and shall assist
15 in the satisfactory amendment of the statement (see also
16 K-B-1, above).

17
18 E. THE PROVOST

19 The final review of applications for promotion is made by the
20 Provost of the University. Applications approved by department
21 committee, chairperson, college committee, and Dean or Director go
22 directly to the Provost; unless they are not supported by the
23 Provost, such recommendations are forwarded to the President of
24 the University for approval by the Board of Trustees. Applications
25 approved by department committee, chairperson, college committee, and
26 Dean or Director, but disallowed by the Provost go to the University
27 Committee on Promotions and Tenure; the recommendations of that
28 committee to the Provost are discussed by Provost and committee, and

1 the final decision by the Provost is transmitted to the President
2 for approval by the Board of Trustees. Applications not supported
3 by any one or more of the department committee, chairperson, college
4 committee, or Dean or Director go to the University Committee on
5 Promotions and Tenure, and then to the Provost. Following consultation
6 with the Committee, the Provost forwards approved recommendations
7 to the President for approval by the Board of Trustees. Should the
8 Provost fail to support a recommendation, the reasons for the decision
9 will be given to the candidate, the department chairperson, the
10 college committee, the Dean or Director, and the University Committee
11 on Promotions and Tenure. The same requirements for full and
12 specific explanation of those reasons shall be met by the Provost as
13 obtain for other negative decisions at lower levels.

14
15 F. SCHEDULE [No change from present Faculty Handbook III-K-E.]

16
17 G. DEPARTMENTAL CRITERIA AND PROCEDURES FOR PROMOTION AND TENURE
18 [No change from present statement under same heading, on pages
19 III-K-6 through III-K-10 of the current Faculty Handbook.]
20
21
22
23
24
25
26
27
28

F. FACULTY RESEARCH AND PUBLICATIONS

Research and publication are a significant part of each faculty member's total contribution as a member of the academic community. Faculty members must be engaged in some form of creative activity in their academic fields and it is expected that creative activity will be evidenced by publication, which not only signifies the completion of scholarly inquiry but makes it available to other scholars. The number and frequency of publications will vary with the individual, the field of study, and the proportion of time devoted to research; however, no faculty member can be excused from research and its publication on the grounds that all available time is devoted to other activities.

Conversely, teaching, advising, committee responsibilities and community service are not to be neglected on the ground that research and publication have a higher priority. Each faculty member is expected to make a balanced contribution to the University.

UNIVERSITY OF DELAWARE - COLLEGE OF NURSING

NEW CURRICULUM PROPOSAL

SUGGESTED PLAN OF STUDY

FRESHMAN YEAR

Credits

Credit

E 110 Critical Reading & Writing	3	E 301 Problems in Composition	3
B 207 Introductory Biology I	4	B 208 Introductory Biology II	4
M 115 Pre Calculus	3	C 213 Elementary Organic Chemistry	4
C 105 General Chemistry	5	PSY 201 General Psychology	3
		ANT 200 Level or above	3
	<u>15</u>		<u>17</u>

SOPHOMORE YEAR

E 200 Level or above (Literature)	3	Restricted Elective: (Humanities)	3
PSY 325 Child Psychology	3	Art, ARH, Literature, Comp. Lit.,	
B 371 Introduction to Microbiology	4	History, PHL, MU or Theatre	
C 214 Elementary Biochemistry	3	B 406 Human Physiology	3
C 216 Elementary Biochemistry Lab	1	B 416 Human Anatomy & Physiology Lab	1
		N 205 Societal Context of Nursing	3
		Elective	3
		SOC 200 Level or above	3
	<u>14</u>		<u>16</u>

JUNIOR YEAR

N 305 Determinants of Wellness	10	N 307 Restorative Nursing	
N 312 Pathophysiology	3	Practice I	10
FSN 303 Food, Nutrition & Health	3	N 314 Psychopathology	2
		N 332 Pharmacological Nursing	
		Response	3
	<u>16</u>		<u>15</u>

SENIOR YEAR

N 407 Restorative Nursing	10	N 410 Professionalism in Nursing	
Practice II		Practice	11
N 322 Introduction to Research	3	Restricted Elective: (Social	
PHL Philosophy	3	and Behavioral Science) H,	
		PSC, EC, BAS, WS	3
		Elective	3
	<u>15</u>		<u>17</u>

Total Credits 126

PROPOSAL FOR A Ph.D. PROGRAM IN
APPLIED SCIENCE-CLIMATOLOGY

INTRODUCTION

Development of a strong climatology focus within Geography over the past decade has brought the Department and the University to the point where a Ph.D. program in Climatology is essential to the continued rise in the quality of our program and our national reputation. Because of a strong Ph.D. program in Applied Sciences at the University, the coupling of climatology and the existing Applied Sciences program would establish at this University one of the most rigorous climatology Ph.D. programs in the nation. For these reasons, and in full view of an increasing national awareness that climate significantly influences the quality of life, the Department of Geography proposes implementation of an Applied Science-Climatology Ph.D. program at the University of Delaware. This program would be administered by the Geography Department.

Need for a Ph.D. Program in Climatology. At the present time, the Department of Geography has successful M.A. and M.S. programs in Geography-Climatology (approximately 10 of our 16 active graduate students are in this area). Unfortunately, without a Ph.D. program our best students do not have the opportunity to continue at Delaware. An even greater problem is that some of the best climatology students across the nation never apply to Delaware because of the lack of the Ph.D. option. Faculty research is also impeded since graduate (M.A. or M.S.) students are currently not in residence long enough to obtain the substantive and quantitative expertise necessary to contribute in a significant way to original research. At the same time, granting agencies are less likely to award research contracts to departments without the highly skilled research assistance that Ph.D. students provide. In sum, if the climatology program at Delaware is going to continue to move forward, a Ph.D. program in climatology is needed.

Although a program administered solely by the Department could be developed, members of the Department's climatology group feel that the existing breadth, rigor, and structure of the Applied Science program offers an opportunity to develop what would prove to be the finest geographical-climatological Ph.D. program in the nation.

Cost to the University. No immediate, direct cost to the University is anticipated since no more than four or five students are estimated to be in residence in any given year. Such a small number of students should not require additional faculty lines or new courses. It is expected that Ph.D. students will be supported by research monies. Thus, the program is designed

to be self-supporting, i.e., special resources, in addition to what we already request to maintain our existing undergraduate and graduate programs, should either not be needed or will be available through research grant support. The Department has two TA positions at present. Additional TA support from the University would be appreciated but the program would not have to be changed if it were not received since it is felt that sufficient research assistantships will be generated to support Ph.D. candidates.

Other costs to the University should be minimal. Clearly space is limited in Robinson, but it is hoped that new space will shortly be made available in the Women's Gym to allow some expansion. It may be that an additional 600 square feet of office and laboratory space may be needed as the program develops. Library holdings are quite adequate since the Library purchased the specialized library of C.W. Thornthwaite Associates Laboratory of Climatology some years ago. Journal holdings are excellent. Instrumental and computer support monies should be generated by research grants. Thus, space would seem to be the major need at present. Of course, if the program grows, as expected, it is possible that an additional faculty line might be requested within five years but one is not needed in the next several years.

DESCRIPTION OF THE PROPOSED PROGRAM

The aim of the Department in participating in the Applied Sciences Ph.D. program would be to provide a sound scientific training for climatology students in order that these students may become either superior (1) applied climatologists working in business, industry or government or (2) university or college teachers and/or researchers. The proposed program is purposefully designed to be flexible to accomodate these broad goals although it adheres to the guidelines previously set down for the Applied Sciences Ph.D. program.* Those guidelines supercede these in the event of an ambiguity.

Admission to the Ph.D. Program. Consistent with the general guidelines of the Applied Sciences program a student would not be considered for admission to the proposed Applied Science-Climatology Ph.D. program unless that student had obtained the following minimum requirements:

1. Completion of mathematics through differential equations, i.e., M241, M242, M243 and M302 or their equivalent.
2. Demonstrated knowledge of at least one higher level programming language (e.g., FORTRAN).
3. A combined score of 1050 in the Quantitative and Verbal sections of the Graduate Record Examination.
4. An undergraduate grade point average of 3.0 over-all as well as in geography, meteorology and related science, mathematics, statistics and computing courses.
5. Strong letters of recommendation from at least three former professors or supervisors.
6. Completion of a Master's Degree in Geography-Climatology or closely related discipline with a grade point average of at least 3.25.

* University of Delaware: Graduate Catalog, 1979-81.

Applicants with no prior training in climatology-geography may be admitted and attend classes on a provisional status until any assigned remedial work has been successfully completed at which time their status will be upgraded.

Guidelines for the Ph.D. Program. Ph.D. students in Applied Science-Climatology will be expected to obtain an in-depth knowledge of two areas. One of these must be topical, e.g., bioclimatology, physical climatology or urban climatology, and the other must be methodological, e.g., statistical methods, mathematics or computer science. Students are also expected to have a broad overview of climatology which will be considered a third area for examination purposes.

Once the student has identified his topical area of interest and that area is deemed acceptable by the climatology faculty within the Geography Department, the student will obtain a major advisor from within the Geography Department whose expertise lies in that area of interest. An interim advisor will be assigned by the Department until the major advisor has been selected. Together with the major advisor, the student will then select two further committee members. One must be a member of the Geography Department and the other must be a member of one of the allied Departments listed in Table 1. The three-person committee should be selected by the end of the first semester of residence.

Before the beginning of the student's second semester of residence, the three-person committee and the student will develop a course-work curriculum (1) tailored to the student's interests and (2) designed to be completed within two years. Two sample programs are presented (Table 2) in order to illustrate possible curricula as well as the kind of course-work background an entering student might have. The curriculum is considered to be contractual and, therefore, it must be approved in writing by all members of the three-person committee and the student. Subsequent changes to the curriculum must likewise be approved in writing by all parties. Some programs may require additional course work but two years is considered the norm. Students will be expected to maintain at least a 3.0 grade point average not counting dissertation credits, and if, at any time, a student accumulates more than nine credits with grades below B he or she may be subject to dismissal from the program. The only required graduate level course which the student must take is the Seminar in Climatology (G652/852) which focuses on a different aspect of climatic research each time it is given. Normally students must be in residence (enrolled full-time) at least two continuous years beyond the Master's degree although most are expected to remain three to four years. During the third and fourth years, the student is expected to be working on his or her dissertation.

Ph.D. students should plan to spend about one-third of their program on climatologically-related course work, one-third on methodological course work and one-third on their dissertation. Recommended courses in related departments are listed in Table 1. Students may not take more than one-half of their courses in Geography. All other courses must be taken within the following Departments and Colleges: Agricultural Engineering, Entomology, Plant Science, Biological Sciences, Chemistry, Computer and Information Science, Geology, Mathematical Sciences, Physics, Civil Engineering, Chemical Engineering,

Table 1
 Allied Departments¹ and
 Non-Geography Courses Recommended for
 Students in the Applied Science-Climatology Ph.D. Program

<u>Department</u>	<u>Course Numbers</u> ²
Biological Sciences*	637, 638, 660, 662, 674, 801, 848
Computer and Information Science	620, 820, 821, 822, 823, 825, 865
Geology*	611, 657, 847, 854
Mathematical Sciences	514, 521, 601, 602, 609, 610, 616, 617, 630, 672, 801, 802, 822, 823, 824, 825, 887, 888
Physics	604, 607, 608, 809
Statistics ³	601, 602, 615, 616, 617, 618, 620, 650, 651, 656, 657, 810, 811, 815, 816, 818, 836, 856, 857
Civil Engineering	635, 639, 665, 833, 836, 874
Chemical Engineering	828, 829, 830, 831, 861, 864, 872
Mechanical and Aerospace Engineering	661, 801, 802, 803, 804, 805, 806, 831, 838, 863, 864
Marine Studies*	600, 602, 604, 605, 606, 607, 609, 681, 682

¹ Starred Departments are not among the allied departments.

² Bulletin of the University of Delaware: Course Catalog. 1979.

³ Statistics is not a separate department. It is contained within Mathematical Sciences.

Mechanical and Aerospace Engineering and/or Marine Studies. Where possible, students will be advised to take 800-level courses as opposed to lower-level classes.

During the student's fourth or fifth semester in residence, he or she must successfully complete a written qualifying examination. Prior to the examination, two further committee members, (at least one of whom must be from outside the Geography Department) will be added to the three-person committee forming a five-person committee. Committee members four and five should be chosen so that their expertise promises to aid the student in his or her dissertation research. The written qualifying examination is composed of three parts and each part is expected to be completed in four to six hours. Part one is comprised of questions pertaining to the student's topical interest, part two covers the student's methodological studies and part three is designed to evaluate the student's overview of climatology. All questions will be formulated and the answers evaluated by the five-person doctoral committee. The purpose of this exam is to determine whether or not the student has (1) a detailed understanding of the concepts, principles and literature in his or her two areas of specialization and (2) a sound overview of the discipline. If the student fails this exam he/she may take it one additional time. Following successful completion of the written qualifying exam, the student will develop a formal dissertation proposal which must then be accepted by the doctoral committee.

An oral exam, given and evaluated by the five-person committee, will then be scheduled and it must be taken prior to the end of the student's third year in residence. This exam is designed to test the student's proposed dissertation plan as well as his or her ability to communicate orally. Questions on climatological topics other than the dissertation plan are permissible, however. Like the written qualifying exam the oral exam may be taken a total of two times, if necessary. Following successful completion of the oral exam, the student will be admitted to candidacy. The final task is to complete a dissertation.

A dissertation is required as evidence of the student's ability to conduct a significant and original scientific investigation and to communicate the results in a clear and concise written form. After the research has been completed, the student will supply each member of the committee with a written draft for critical review. When a final draft has been accepted by the members of the committee, the student will be expected to defend the dissertation orally before the committee at an open forum.

Table 2

SAMPLE PH.D. PROGRAM ONE

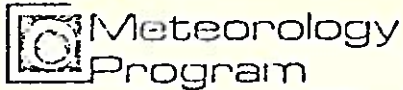
- I. Previous Degrees: B.S. - Civil Engineering (Geography Minor)
M.S. - Geography
- II. Courses Already Taken Relevant to Interests in Climatology:
- A. Mathematics (M241, M242, M243, M302)
 - B. General Physics (PS207, PS208)
 - C. Environmental Biology (B321)
 - D. Fluid Mechanics (MEC305, MEC306)
 - E. Statistical Analysis (ST370)
 - F. Soil Mechanics (CE320)
 - G. Meteorology (G220)
 - H. Physical Climatology (G352)
 - I. Quantitative Geography (G350)
 - J. Applied Climatology (G255)
 - K. Seminar in Climatology (G652)
 - L. Topics in Advanced Mathematics for Engineers (M514)
 - M. Introduction to Applied Mathematics (M616, M617)
 - N. Matrix Operations (M512)
- III. Major Interests at the Ph.D. Level:
- A. Urban or Building Climatology--particularly the modeling of exchanges of energy, mass and momentum between buildings and the atmospheric environment.
 - B. Methods of modeling heat-flow through buildings and the atmospheric boundary-layer.
- IV. Coursework to be Completed at the Ph.D. Level:
- A. Nonlinear Systems Analysis (MAE661)
 - B. Conduction Heat Transfer (MAE802)
 - C. Convection Heat Transfer (MAE803)
 - D. Radiation Heat Transfer (MAE804)
 - E. Special Topics in Heat and Mass Transfer (MAE806)
 - F. Seminumeric Computer Algorithms (CS620)
 - G. Boundary Layer Theory and Application (MAE838)
 - H. Remote Sensing of Environment (CMS681)
 - I. Seminar in Climatology (G652)
 - J. Climatological Research (G855)
- V. Proposed Dissertation Topic:
- "A Climatic Model for Evaluating the Energy-Efficiency of Single-Family Dwellings"

Table 2 (Continued)

SAMPLE PH.D. PROGRAM TWO

- I. Previous Degrees: B.A. - Geography (Biology Minor)
M.S. - Geography
- II. Courses Already Taken Relevant to Interests in Climatology:
 - A. Mathematics (M241, M242, M243, M249, M260, M302)
 - B. Meteorology (G220)
 - C. Computer Methods in Geography (G250)
 - D. Quantitative Geography (G350)
 - E. Statistical Analysis in Earth Sciences (ST657)
 - F. Applied Climatology (G255)
 - G. Physical Climatology (G352)
 - H. Climatic Geomorphology (G343)
 - I. Microclimatology (G651)
 - J. Population Ecology (B637)
 - K. Seminar in Climatology (G652)
 - L. Simulation of Continuous Systems (CS420)
 - M. Soil Physics (AGE603)
 - N. Soil Chemistry (PLS608)
- III. Major Interests at the Ph.D. Level:
 - A. Bioclimatology--particularly the modeling of exchanges of energy, mass and momentum between crop canopies and the atmospheric environment.
 - B. Methods of modeling semi-deterministic, climatic systems and the statistical evaluation of modeled results.
- IV. Coursework to be Completed at the Ph.D. Level:
 - A. Topics in Advanced Mathematics for Engineers (M514)
 - B. Probability Theory (ST601)
 - C. Mathematical Statistics (ST602)
 - D. Fourier Series and Orthogonal Polynomials (M521)
 - E. Advanced Calculus (M601)
 - F. Advanced Calculus (M602)
 - G. Seminar in Climatology (G652)
 - H. Advanced Topics in Computing (CS825)
 - I. Current Topics in Plant Physiology (B848)
 - J. Climatological Research (G855)
- V. Proposed Dissertation Topic:

"A Parameterized-Digital Model for Predicting Corn Yield in Mid-Latitudes"



Meteorology
Program
Space Sciences Building
(301) 454-2708

September 13, 1979

Dr. R. B. Murray
University Coordinator
for Graduate Studies
234 HULLIHAN HALL
UNIVERSITY OF DELAWARE
NEWARK, DE 19711

Dear Dr. Murray:

It has been a pleasure for me to meet with you and discuss with you the proposed new Ph.D. program in Applied Climatology. In line with our conversation you will find below my evaluation of and views on this proposal.

Let me say at the outset that this move is most timely. Last year the Congress passed the National Climate Program Act. This legislation envisages a major federal initiative partly in cooperation with the States, in the field of Climatology heavily weighted toward practical applications. The newly established National Climate Program Office has just submitted to its Congressional Oversight Committee a 5-year plan to implement the Act. On the International scene the World Meteorological Organization, a specialized agency of the United Nations, has also initiated an international program of climate studies. All of this was prompted by the climatic effects on food production and energy use. The problems of climatic disaster impacts, such as the Sahel drought also loom large. In the United States there is in addition the threat of future water shortages.

There is much research to be done but the available personnel resources fall woefully short of the needs. There are opportunities now for people educated in the field and there will be for the foreseeable future. The nature of the problems is complex and highly interdisciplinary. Hence a program as proposed and the matrix from which it stems will certainly be a fertile ground for stimulating research in climatology. It will be a welcome addition to the educational base in the field, which at the moment is narrow and not commensurate with the needs.

Clearly any Ph.D. program can only be as good as the teaching resources of the University offering it. These are, of course, faculty and facilities. The core faculty appears to be commensurate to the task. Its leader Dr. John R. Mather has made major contributions to Applied Climatology and has an outstanding reputation among his professional colleagues. The two assistant professors, Drs. Kalkstein and Willmott have just the right skill mix, novel ideas, and above all the necessary enthusiasm to help with the initiation of the program. The co-location of the Geography

RECEIVE

(Continued)

SEP 17 1979

Dr. R. B. Murray
September 13, 1979
Page 2

Department with the Marine Study Center would be very advantageous for the new program and the special talents of Professor Klemas in remote sensing will be of great help in developing the use of modern technology in climatology. Similarly the unique abilities of Mr. Field in instrument developments will lend strength to the program. In the long run I would think that another faculty member with specialization in climate modelling would be a desirable addition to the staff. The collateral faculty in geography, mathematics, and statistics, and various fields of engineering appears to be more than adequate.

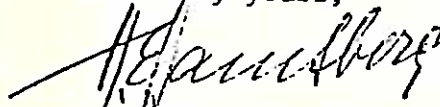
As regards facilities my impression is that there are no special additional requirements, except for adequate office space for the advanced graduate students to be enrolled in this program. Wherever they will be located ready access to remote terminals for computers are essential. Specialized equipment needed for specific research would likely be made available through grant and contract funding, as would stipends for prospective graduate students. Library resources, especially as regards journals in meteorology and climatology might need strengthening. The list on p. 3 of the proposal dated July 12, 1979 could be strengthened. In it the translations of several Russian journals appear to be missing.

In the area of courses and options it would strengthen the proposed program if a healthy dose of biology and agriculture were to be injected. Many of the most interesting applications of climatology are related to such problems as health, pest control, irrigation, etc. Cooperation of such a program with your University's College of Agricultural Sciences and your Department of Biological Sciences would in my view widen the opportunities for prospective students.

Finally, I believe that there will be ample opportunities to secure funds from various federal sources (NOAA, DOE, Agriculture, NSF, etc.).

In summary, the program is basically well conceived, timely, and potentially a good academic risk.

Sincerely yours,



H. E. Landsberg
Professor Emeritus