



UNC CHARLOTTE

The University of North Carolina at Charlotte
9201 University City Boulevard
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May 5, 2004

Office of the Chancellor
Telephone: 704/687-2201
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Dr. Gretchen Bataille
Senior Vice President for Academic Affairs
Office of the President
University of North Carolina
Post Office Box 2688
Chapel Hill, North Carolina 27515-2688

Dear Dr. Bataille:

Enclosed are five copies of a request for authorization to establish a new Bachelor of Science in Meteorology program. A baccalaureate meteorology program was identified in UNC Charlotte's 2004-2009 Plan. This program will meet identified needs for trained meteorologists in the U.S. Air Force, local industries, and the media and gives students enhanced educational, employment and financial aid opportunities. Because the program will share most courses with existing programs at UNC Charlotte, the addition of only four courses is required.

Thank you for your consideration of this request. Provost Joan Lorden or I would be pleased to respond to any questions that you may have regarding this request.

Sincerely yours,

J. H. Woodward
Chancellor

Enclosures (5 copies)

cc: Provost Joan F. Lorden
Dr. Schley R. Lyons

The University of North Carolina at Charlotte

College of Arts and Sciences

Department of Geography and Earth Sciences

**Bachelor of Science in
Meteorology**

Request for Authorization to Establish

THE UNIVERSITY OF NORTH CAROLINA
Request for Authorization to Establish a New Degree Program

INSTRUCTIONS: Please submit five copies of the proposal to the Senior Vice President for Academic Affairs, UNC Office of the President. Each proposal should include a 2-3 page executive summary. The signature of the Chancellor is required.

Date May 3, 2004

Constituent Institution: The University of North Carolina at Charlotte

CIP Discipline Specialty Title: Meteorology

CIP Discipline Specialty Number: 40.0404 Level: B M 1st Prof D

Exact Title of Proposed Program: Bachelor of Science in Meteorology

Exact Degree Abbreviation (e.g. B.S., B.A., M.A., M.S., Ed.D., Ph.D.): B.S.

Does the proposed program constitute a substantive change as defined by SACCS? Yes No

a) Is it at a more advanced level than those previously authorized? Yes No

b) Is the proposed program in a new discipline division? Yes No

Proposed date to establish degree program (allow at least 3-6 months for proposal review):

month August year 2004

Do you plan to offer the proposed program away from campus *during the first year of operation*?

Yes No

If so, complete the form to be used to request establishment of a distance learning program and submit it along with this request.

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Executive Summary

There are several area demand sources for meteorologists, and the proposed program is structured to address this demand. The U.S. Air Force relies on trained meteorologists and offers full, 4-year scholarships to Air Force ROTC cadets pursuing a meteorology degree. Transportation, utilities, and other local industries' operations are highly sensitive to the weather, and these businesses rely on in-house meteorologists. The Charlotte media market is the largest in the Carolinas and employs many meteorologists in forecasting. Graduates of the program will be prepared for these job markets, as well as for entry-level jobs in the National Weather Service and for graduate study in meteorology or climatology.

The proposed program requires only the addition of four new courses. The remainder of the required courses now exist to serve the Bachelor of Science in Earth Sciences and other programs.

A conservative projection of enrollments is that a steady-state of 12 students will be achieved in four years.

The curriculum and location differentiate the proposed program from the meteorology programs offered at NC State and UNC Asheville. The demand is present for a program at UNC Charlotte independent of the two fine existing programs. Data, library, facilities, and equipment resources are adequate to establish the program and will be enhanced.

For a minimal investment in new courses, the University can offer students enhanced academic, employment, and financial aid opportunities and can address the region's and the U.S. Air Force's demand for trained meteorologists.

I. DESCRIPTION OF THE PROGRAM

A. Describe the proposed degree program (i.e., its nature, scope, and intended audience).

The proposed Bachelor of Science program in Meteorology comprises 69 hours in required Earth Sciences, Geology, Mathematics, Chemistry, Physics, and Engineering courses and seven hours in elective Earth Sciences courses. Of the 69 hours, a minimum of 20 semester hours will be in Meteorology courses, including ESCI 3140, ESCI 3250, ESCI 3251, ESCI 3260, ESCI 4250, and ESCI 4251. A description of the proposed Bachelor of Science in Meteorology program appears below. Students enrolled in the program must complete a total of 120 hours and fulfill the general education requirements applicable to all baccalaureate degrees at UNC Charlotte.

B. List the education objectives of the program.

The Air Force ROTC has expressed the need for a meteorology program at UNC Charlotte. Several industries in the Charlotte region are weather-sensitive and have expressed their need for in-house meteorologists. The proposed program will address these demands for meteorologists. This program contains the coursework necessary for certification from the American Meteorological Society. Students with a B.S. in Meteorology will be prepared for entry-level jobs with the National Weather Service, the United States Air Force, broadcasting, and for graduate study in meteorology or climatology.

C. Describe the relationship of the program to other programs currently offered at the proposing institution, including the common use of: (1) courses, (2) faculty, (3) facilities, and (4) other resources.

The new degree program joins the Bachelor of Science in Earth Sciences (ESCI), Bachelor of Science in Geography (GEOG), and the Bachelor of Science in Geology (GEOL) as baccalaureate offerings from the Department of Geography and Earth Sciences. The new program will, for the most part, use courses that already are being taught in existing programs. With the addition of four new courses, the new program will allow students to study meteorology in a more formal and rigorous manner than is presently available. Meteorology courses would share teaching space with other ESCI and GEOL courses.

II. JUSTIFICATION FOR THE PROGRAM

A. Describe the proposed program as it relates to:

1. The institutional mission and strategic plan

Many enrolled and prospective students inquire about opportunities for coursework in meteorology. Although most of these students are receptive to opportunities currently available in atmospheric science and climatology at UNC Charlotte, many seek a dedicated degree in meteorology. These students could be better served by expanding the curriculum to include a B.S. in Meteorology.

The B.S in Meteorology is part of the University's five-year plan. In addition, Air Force ROTC has a strong interest in this major.

2. Student demand

The estimated number of students during the first year is three full-time and four part-time. This number is expected to grow slowly after the program is established.

3. Societal need (For graduate, first professional, and baccalaureate professional programs, cite manpower needs in North Carolina and elsewhere.)

The Charlotte region is home to three major clients of weather forecasting: Charlotte-Douglas International Airport (a hub for US Airways), Duke Energy, and the combined media (television and radio) of Charlotte, the largest city in the Carolinas. All of these agencies have a need for meteorologists, and UNC Charlotte is well positioned to supply these needs. Existing contacts and collaborations between UNC Charlotte, Duke Energy, the media and the National Weather Service office in Greer, South Carolina, would be enhanced as a result of offering the Bachelor of Science degree. Students involved in internships with these agencies would be appropriately trained for employment as meteorologists.

4. Impact on existing undergraduate and/or graduate academic programs of your institution. (e.g., Will the proposed program strengthen other programs? Will it stretch existing resources? How many of your programs at this level currently fail to meet Board of Governors' productivity criteria? Is there a danger of proliferation of low-productivity degree programs at the institution?)

This program would certainly strengthen the existing degree programs in Geography and Earth Sciences. Resources are in place to support this program at the level proposed. Demand for meteorologists supports creation of this program. The Air Force ROTC program has made a commitment to support this program with several full scholarships.

There are presently two meteorology/atmospheric science faculty in the department. Members of the local community who have taught at UNC Charlotte in the past anticipate being available for future courses, however anticipated hiring by the department of Geography and Earth Sciences will address the needs for an expanded atmospheric science full-time faculty.

No new equipment is required at this time; however, tools used by operational meteorologists, a display system similar to that used at the National Weather Service called “NAWIPS” (National Advanced Weather Interactive Processing System) and a SODAR (Sound Detecting and Ranging) profiler will be pursued through outside funding sources. The Department already has a meteorological tower and a network of meteorological stations through the Charlotte area. In addition a meteorological observation station is being installed on campus and the current planning is to have it certified by the National Weather Service.

B. Discuss potential program duplication and program competitiveness

1. Identify similar programs offered elsewhere in North Carolina. Indicate the location and distance from the proposing institution. Include a) public and b) private institutions of higher education.

a) public institutions

There are currently two bachelor of science programs in meteorology: North Carolina State (143 Miles) and UNC Asheville (140 Miles).

b) private institutions

There are no private programs to train meteorologists in North Carolina.

2. Indicate how the proposed new degree program differs from other programs like it in the University. If the program duplicates other UNC programs, explain a) why is it necessary or justified and b) why demand (if limited) might not be met through a collaborative arrangement (perhaps using distance education). If the program is a first professional or doctoral degree, compare it with other similar programs in public and private universities in North Carolina, in the region, and in the nation.

The proposed program differs from similar programs at N.C. State and UNC Asheville in several ways. The proposed curriculum represents an applied program, while the program N.C. State has an atmospheric science focus. The air pollution concentration within the proposed program differentiates it from UNC Asheville’s program.

The Charlotte location is important. Several students who graduated in Earth Sciences and/or Geography during the past several years have gone on to become operational forecasters within the military or within corporations like Duke Energy, and some have earned master’s or Ph.D.s in meteorology or climatology. Broadcast media and other industries in Charlotte provide students with many opportunities for experiential learning, as well as employment after graduation. This program is different because it would be located in Charlotte and would serve the growing number of students in Charlotte who would like to study atmospheric science at UNC Charlotte and in this region of North Carolina.

Creation of the program serves the needs of the Air Force ROTC and expands access to meteorology education through Air Force ROTC-sponsored scholarships.

C. Enrollment (baccalaureate programs should include only upper division majors, juniors, and seniors).

Headcount enrollment

Show a five-year history of enrollments and degrees awarded in similar programs offered at other UNC institutions (using the format below for each institution with a similar program); indicate which of these institutions you consulted regarding their experience with student demand and (in the case of professional programs) job placement. Indicate how their experiences influenced your enrollment projections.

Program Title: Atmospheric Sciences and Meteorology-B.S. Programs

University	Data	Year				
		1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
North Carolinas State University	Fall Enrollment	Not avail.	56	50	57	53
	Degrees awarded	16	22	16	24	Not avail.
UNC Asheville	Fall Enrollment	Not avail.	20	32	26	23
	Degrees awarded	14	4	13	20	Not avail.

Use the format in the chart below to project your enrollment in the proposed program for four years and explain the basis for the projections:

	Year 1 (2004-05)	Year 2 (2005-06)	Year 3 (2006-07)	Year 4 (2007-08)
Full-time	3	5	6	8
Part-time	4	4	5	4
	7	9	11	12

These numbers are a conservative estimate based on the experiences at UNC Asheville and NC State, and based on the availability of full scholarships through the Air Force ROTC.

Please indicate the anticipated steady-state headcount enrollment after four years:

Full-time 8 Part-time 4 Total 12

SCH production (upper division program majors, juniors and seniors *only*, for baccalaureate programs). Use the format in the chart below to project the SCH production for four years. Explain how projections were derived from enrollment projections (see UNC website for a list of disciplines comprising each of the four categories).

Year 1	Student Credit Hours (SCH)		
Program Category	UG	Master's	Doctoral
Category I			
Category II			
Category III	81		
Category IV			

Year 2	Student Credit Hours (SCH)		
Program Category	UG	Master's	Doctoral
Category I			
Category II			
Category III	111		
Category IV			

Year 3	Student Credit Hours (SCH)		
Program Category	UG	Master's	Doctoral
Category I			
Category II			
Category III	135		
Category IV			

Year 4	Student Credit Hours (SCH)		
Program Category	UG	Master's	Doctoral
Category I			
Category II			
Category III	156		
Category IV			

The SCH projections are derived from the enrollment projections, with one-half of the students at the upper division level, full-time students taking 30 credit hours and part-time students taking 18 credit hours per year.

III. PROGRAM REQUIREMENTS AND CURRICULUM

A. Program Planning

1. List the names of institutions with similar offerings regarded as high quality programs by the developers of the proposed program.

1. Florida State University
2. The Pennsylvania State University
3. SUNY Stony Brook
4. SUNY Albany
5. University of Oklahoma

2. List other institutions visited or consulted in developing this proposal. Also list any consultants' reports, committee findings, and simulations (cost, enrollment shift, induced course load matrix, etc.) generated in planning the proposed program.

None.

B. Admission. List the following:

1. Admissions requirements for proposed program (indicate minimum requirements and general requirements).

Admission requirements are the same as UNC Charlotte admission requirements.

2. Documents to be submitted for admission (listing or sample).

There are no documents requirements beyond those for admission to UNC Charlotte.

C. Degree requirements. List the following:

1. Total hours required.

The proposed program leading to the Bachelor of Science degree in Meteorology is a 120 semester-hour program, including completion of all General Education requirements and 69 semester hours in courses approved for Meteorology major.

2. Proportion of courses open only to graduate students to be required in program (graduate programs only).

Not applicable

3. Grades required.

All candidates must earn a GPA of 2.0 or better in the major to graduate.

4. Amount of transfer credit accepted.

No transfer credit will be accepted for the last 30 credit hours.

5. Other requirements (e.g. residence, comprehensive exams, thesis, dissertation, clinical or field experience, second major, etc.)

None.

6. Language and/or research requirements.

None.

7. Any time limits for completion.

Not applicable.

D. List existing courses by title and number and indicate (*) those that are required. Include an explanation of numbering system. List (under a heading marked "new") and describe new courses proposed.

Courses Number	Course Name	Semester Hours
*ESCI 1101	Earth Science – Geography	3
*ESCI 1101 L	Earth Science – Geography Laboratory	1
*GEOL 1200	Physical Geology	3
*GEOL 1200 L	Physical Geology Laboratory	1
*MATH 1241	Calculus 1	3
*MATH 1242	Calculus 2	3
*STAT 2122	Intro Probability and Statistics	3
*MATH 2171	Differential Equations	3
*CHEM 1251	Principles of Chemistry	3
*CHEM 1251L	Principles of Chemistry Laboratory	1
*PHYS 2101	Physics for Science 1	3
*PHYS 2101L	Physics for Science 1 Laboratory	1
*PHYS 2102	Physics for Science 2	3
*PHYS 2102L	Physics for Science 2 Laboratory	1
*ETME 3133	Fluid Mechanics	3
*ETME 3143	Thermodynamics	3
*ESCI 3105	Oceanography	3
*ESCI 3250	Dynamic Meteorology	3
*ESCI 3250 L	Dynamic Meteorology Laboratory	1
*ESCI 3251	Synoptic Meteorology	3
*ESCI 3251 L	Synoptic Meteorology Laboratory	1
*ESCI 4600	Earth Science Seminar	1
ESCI 3252	Weather Analysis Laboratory	1
ESCI 3240	Boundary Layer Meteorology	3
ESCI 4150	Applied Climatology	3
ESCI 4140	Hydrologic Processes	4
ESCI 4170	Remote Sensing	4
ESCI 4180	Digital Image Processing	4

New

- *ESCI 3140 Introduction to Meteorology and Climatology (3 credit hours)
Fundamental physical principles of weather and climate. Analysis of short and long term atmospheric behavior are introduced. Topics include solar radiation, temperature, moisture, wind and pressure, synoptic systems, regional climates, paleoclimates, climatic change, and applied climatology.
- *ESCI 4250 Advanced Dynamic Meteorology (3 credit hours)
ESCI 4250/5250. Prerequisites: ESCI 3250, ESCI 3251. In-depth examination of atmospheric dynamics, focusing on the structure and evolution of synoptic scale dynamical and convective weather systems, and atmospheric modeling. Three hours of lecture per week.
- *ESCI 3260 Physical Meteorology (3 credit hours)
Properties of aerosols and clouds, cloud nucleation and precipitation processes, and atmospheric electricity. Introduction to radar meteorology. Three hours of lecture per week.
- *ESCI 4251 Advanced Synoptic Meteorology (3 credit hours)
An extension of ESCI 3251 sufficient to develop an integrated view of dynamic and synoptic meteorology. Included are a survey of conceptual models and analysis techniques for mesoscale atmospheric features, cumulus convection, and tropical storms.

IV. FACULTY

- A. **List the names of persons on the faculty who will be directly involved in the proposed program. Provide complete information on each faculty member's education, teaching experience, research experience, publications, and experience in directing student research, including the number of theses and dissertations directed for graduate programs. The official roster forms approved by SACS can be submitted rather than actual faculty vita.**

Faculty Name	Highest Degree and Institution	Other degrees and Institutions
Brian Etherton	Ph.D. The Pennsylvania State Univ.	B.S., The Evergreen State College
Walter Martin	Ph.D. University of Tennessee	B.S., M.A., East Carolina University
John Bender	Ph.D. SUNY Stony Brook	B.S., State University of New York at New Paltz; M.S., Pennsylvania State University;
Craig Allan	Ph.D. University of Toronto	B.Sc., University of Manitoba; M.Sc., Trent University

- B. Estimate the need for new faculty for the proposed program for the first four years. If the teaching responsibilities for the proposed program will be absorbed in part or in whole by the present faculty, explain how this will be done without weakening existing programs.**

Required and optional coursework within the Geography and Earth Sciences Department is already being taught by existing faculty or part-time faculty, however it is anticipated that two additional staff meteorologists will be required during the next three years to fully support new coursework.

- C. If acquisition of new faculty requires additional funds, please explain where and how these funds will be obtained.**

Faculty in the Department of Geography and Earth Sciences will be added through the campus' new faculty line allocation process. Some of these positions will be created through enrollment increases funding.

- D. Explain how the program will affect faculty activity including course load, public service and scholarly research.**

No adverse effect is anticipated. Potentially many faculty in science, engineering, and architecture will benefit from the growth of expertise in applied atmospheric science on the UNC Charlotte campus.

V. LIBRARY

- A. Provide a general statement as to the adequacy of present library holdings for the proposed program.**

The adequacy of library holding to support this program were evaluated by Dawn Hubbs, Atkins Library, UNC Charlotte. Her assessment follows:

Library resources are adequate to support a Bachelor of Science in Meteorology program. As the documentation states, "The new program will, for the most part, use courses that already are being taught for existing programs." In addition, this program, as with many science programs at the undergraduate level, relies more on laboratory research than traditional library research.

Library resources to support this program have strengthened significantly over the last few years. The library has obtained electronic access to Compendex, a major index in the field of meteorology. The library also has access to Cambridge Scientific Abstracts' Earth and Environmental Sciences collection of indexes. The NC Live full-text databases Academic Search Elite, MasterFILE Premier, and InfoTrac Expanded Academic offer good support for the introductory courses. The full-text publisher databases of Science Direct (Elsevier) and LINK (Springer-Verlag) have improved our journal holdings tremendously in the science fields. To a lesser extent, the full-text IEEE Xplore provides

full-text access to some relevant journals. While we do not have access to all of the major journals, we have access to a significant number. For an undergraduate program, our indexes and journal holdings are on the “good” side of adequate.

The library consultation report is included as Appendix A.

B. State how the library will be improved to meet program requirements for the next five years. The explanation should discuss the need for books, periodicals, reference materials, primary source materials, etc. What additional library support must be added to areas supporting the proposed program?

Library catalog searches under the very broad subject headings of climatology, meteorology, precipitation (meteorology), indicate new monographs are being added to the collection on an annual basis. In addition, the library has a sizeable collection of federal documents to support the program.

The library has over the years purchased some climatological data (EarthInfo’s *NCDC Summary of the Day, Hourly Precipitation, and Surface Airways*), and received other sets through the federal depository library program (NCDC’s *Cooperative Summary of the Day*).

C. Discuss the use of other institutional libraries

Although the internet and full text access have greatly reduced the need for some traditional inter-library activities, the holdings in atmospheric science at North Carolina State, The University of North Carolina at Chapel Hill, and those at Georgia Tech are available through an easy day trip to any of these locations.

VI. FACILITIES AND EQUIPMENT

A. Describe facilities available for the proposed program.

The B.S. in Meteorology will be housed within the Department of Geography and Earth Sciences. The Department currently occupies the fourth floor of McEniry Building with additional space for labs in Kennedy Building.

The Department has several modern well-equipped teaching and research laboratories. A wide variety of field computational and laboratory equipment as well as state-of-the-art computer facilities are utilized in laboratory and student research activities. Two fifteen-passenger vans and other university vehicles are available to facilitate in and out-of-state field trips. The Department has a instrument tower, several operational weather observations stations, and is developing a fully equipped weather observation station for certification by the NWS.

B. Describe the effect of this new program on existing facilities and indicate whether they will be adequate, both at the commencement of the program and during the next decade.

Existing facilities are adequate and the anticipated growth of students in this new program will result in more efficient use of classroom and computer facilities.

C. Discuss any information technology services needed and/or available.

Internet service is essential. The anticipated acquisition of a satellite based real time data access (NAWIPS) can be handled within the Departmental equipment budget although external funding will be sought. The Department has been a Unidata McIDAS client in the past and plans to expand the use of real time observational tools with some of the latest NOAA-based technology like NAWIPS.

D. Discuss sources of financial support for any new facilities and equipment.

The primary research and teaching tools for this program will be computers and it is anticipated that basic support will come from annual Departmental equipment budgets. Supplemental funding will be sought from public and private granting organizations to purchase equipment beyond the program's basic needs.

VII. ADMINISTRATION

Describe how the proposed program will be administered giving the responsibilities of each department, division, school, or college. Explain any inter-disciplinary or inter-unit administrative plans. Include an organizational chart showing the "location" of the proposed program.

The proposed program will be in the Department of Geography and Earth Sciences, which is within the College of Arts and Sciences. The Chair of the Department of Geography and Earth Sciences has ultimate responsibility for the programs within the Department. The Chair reports to the Dean of the College of Arts and Sciences, who in turn reports to the University's Provost.

VIII. ACCREDITATION

Indicate the names of all accrediting agencies normally concerned with programs similar to the one proposed. Describe plans to request professional accreditation. If the proposed new degree program is at a more advanced level than those previously authorized or if it is in a new discipline division, was SACS notified of a potential “substantive change” during the planning process? If so, describe the response from SACS and the steps that have been taken to date with reference to the applicable procedure.

The leading academic organization in meteorology is the American Meteorological Society (AMS). Individuals are certified by the AMS based upon their coursework, knowledge, and experience. This program would satisfy the coursework requirements for any of the three AMS certification levels.

The U.S. Air Force has given preliminary approval of the proposed curriculum and a full accreditation is anticipated when the program is approved and operational.

IX. SUPPORTING FIELDS

Are other subject-matter fields at the proposing institution necessary or valuable in support of the proposed program? Is there needed improvement or expansion of these fields? To what extent will such improvement or expansion be necessary for the proposed program?

Coursework in calculus, statistics, chemistry, physics, fluid dynamics, and thermodynamics are integral parts of the new program. These courses are currently taught in the departments of mathematics, chemistry, physics, and mechanical engineering. At projected enrollment levels there is no need to consider expansion at this time.

X. ADDITIONAL INFORMATION

Include any additional information deemed pertinent to the review of this new degree program proposal.

XI. BUDGET

Provide estimates (using the attached form) of the additional costs required to implement the program and identify the proposed sources of the additional required funds. Use SCH projections (section II.C.) to estimate new state appropriations through enrollment increase funds. Prepare a budget schedule for each of the first three years of the program, indicating the account number and name for all additional amounts required. Identify EPA and SPA positions immediately below the account listing. New

SPA positions should be listed at the first step in the salary range using the SPA classification rates currently in effect. Identify any larger or specialized equipment and any unusual supplies requirements.

For the purposes of the second and third year estimates, project faculty and SPA position rates and fringe benefits rates at first year levels. *Include the continuation of previous year(s) costs in second and third year estimates.*

Additional state-appropriated funds for new programs may be limited. Except in exceptional circumstances, institutions should request such funds for no more than three years (e.g., for start-up equipment, new faculty positions, etc.), at which time enrollment increase funds should be adequate to support the new program. Therefore it will be assumed that requests (in the “New Allocations” columns of the following worksheet) are for one, two, or three years unless the institution indicates a continuing need and attaches a compelling justification. However, funds for new programs are more likely to be allocated for limited periods of time.

Budget projections for the first three years of operation are shown in Appendix B.

XII. EVALUATION PLANS

All new degree program proposals and degree program track descriptions must include an evaluation plan which includes: (a) the criteria to be used to evaluate the quality and effectiveness of the program, (b) measures to be used to evaluate the program, (c) expected levels of productivity of the proposed program/track for the first four years of the program (numbers of graduates), (d) the names, addresses, and telephone numbers of at least three persons...qualified to review this proposal and to evaluate the program once operational, and (e) the plan and schedule to evaluate the proposed new degree program prior to the completion of its fifth year of operation once fully established.

A. Criteria to be used to evaluate the proposed program (not in an order of priority).

The criteria used to evaluate the program will include:

- i. ability to attract well prepared students
- ii. the quality of instruction
- iii. the quality of faculty
- iv. ability to produce graduates
- v. competence of graduates
- vi. satisfaction of employers

B. Measures to be used to evaluate the program:

The program will be evaluated by :

- i. the number of students enrolled
- ii. scores on student course evaluations
- iii. annual and post tenure review of program faculty
- iv. the number graduates
- v. graduate grade point averages
- vi. the number of graduates working in meteorology.

- vii. and by assessments from representatives of the American Meteorological Society or operational meteorologists/climatologists from the National Weather Service or NOAA who will be invited to visit and provide review and evaluation.

C. Projected productivity levels (numbers of graduates):

	Year 1 (2004-2005)	Year 2 (2005-2006)	Year 3 (2006-2007)	Year 4 (2007-2008)	TOTALS
B	0	1	3	4	8
M					
I/P					
D					

It is anticipated that some Earth Sciences majors currently enrolled will switch to the new meteorology program and graduate in years two and three. By year four and beyond the number of graduates will be proportional to the number of entering students four years earlier.

D. Recommended consultants/reviewers: Names, titles, addresses, e-mail addresses, and telephone numbers. May not be employees of the University of North Carolina.

Larry Lee
Chief Science Officer
National Weather Service
Greenville-Spartanburg Airport
1549 GSP Drive
Greer, SC. 29651
larry.lee@noaa.gov
864-848-9970

Nick Keener, CCM
Senior Scientist
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Alan T. Giles
Communications Coordinator
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Services Agency
Mecklenburg County Government
700 North Tryon Street
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gilesas@co.mecklenburg.nc.us
704-336-5836

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Commander
Air Force ROTC Detachment 592
University of North Carolina at
Charlotte
Charlotte, NC 28223-001
paladen@email.uncc.edu
704-687-4537

E. Plan for evaluation prior to sixth operational year.

We plan to compile measurement data during year five and invite representatives from the American Meteorological Society, the National Weather Service, or some other appropriate branch of NOAA to visit our campus, interact with faculty and students, to review these data, and to provide an external evaluation of the program strengths and weaknesses.

XIII. REPORTING REQUIREMENTS

Institutions will be expected to report on program productivity after one year and three years of operation. This information will be solicited as a part of the biennial long-range planning revision.

Proposed date of initiation of proposed degree program: August 23, 2004

This proposal to establish a new program has been reviewed and approved by the appropriate campus committees and authorities.

Chancellor

Appendix A

Library Consultation Report



UNCC CHARLOTTE
J. Murrey Atkins Library

Consultation on Library Holdings

To: Jerry Ingalls, Geography and Earth Sciences
From: Dawn Hubbs, Library
Date: December 2, 2003
Subject: Bachelor of Science in Meteorology

Summary of Librarian's Evaluation of Holdings:

Evaluator: Dawn Hubbs **Date:** December 2, 2003

Please Check One:

- Holdings are superior _____
- Holdings are adequate x
- Holdings are adequate only if Dept. purchases additional items. _____
- Holdings are inadequate _____

Comments:

Library resources are adequate to support a Bachelor of Science in Meteorology program. As the documentation states, "The new program will, for the most part, use courses that already are being taught for existing programs." In addition, this program, as with many science programs at the undergraduate level, relies more on laboratory research than traditional library research.

Library resources to support this program have strengthened significantly over the last few years. The library has obtained electronic access to Compendex, a major index in the field of meteorology. The library also has access to Cambridge Scientific Abstracts' Earth and Environmental Sciences collection of indexes. The NC Live full-text databases Academic Search Elite, MasterFILE Premier, and InfoTrac Expanded Academic offer good support for the introductory courses. The full-text publisher databases of Science Direct (Elsevier) and LINK (Springer-Verlag) have improved our journal holdings tremendously in the science fields. To a lesser extent, the full-text IEEE Xplore provides full-text access to some relevant journals. While we do not have access to all of the major journals, we have access to a significant number. For an undergraduate program, our indexes and journal holdings are on the "good" side of adequate.

Library catalog searches under the very broad subject headings of climatology, meteorology, precipitation (meteorology), indicate new monographs are being added to the collection on an annual basis. In addition, the library has a sizeable collection of federal documents to support the program.

The library has over the years purchased some climatological data (EarthInfo's *NCDC Summary of the Day, Hourly Precipitation, and Surface Airways*), and received other sets through the federal depository library program (NCDC's *Cooperative Summary of the Day*).



Evaluator's Signature

December 2, 2003
Date

Appendix B

**Budget Projections for
the First Three Years of Program Operation**

**Projected Funding for New Degree Program
 Bachelor of Science in Meteorology
 Regular Term 2004-2005
 (Based on 2003-2004 Change in Student Credit Hours)**

Program Category	Change in Student Credit Hours			Instructional - Position Funding Factors			Instructional Positions Required		
	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral
Category I				643.72	171.44	138.41	0.000	0.000	0.000
Category II				487.37	249.94	146.74	0.000	0.000	0.000
Category III				364.88	160.93	122.95	0.000	0.000	0.000
Category IV				230.52	102.45	70.71	0.000	0.000	0.000

Fringes for faculty salaries
 FICA @ 7.65%;
 Retirement @ **10.04%**
 Medical @ \$3,432

\$0
 \$0
 \$0

 \$0

Total Positions Required		0.000
Instructional - Position Salary Rate	(FY 02)	<u>\$62,573</u>
<i>101-1310</i> Instructional Salary Amount		\$0
Other Academic Costs	44.89300%	<u>0</u>
<i>Purpose 101</i> Total Academic Requirements		\$0
<i>Purpose 151</i> Library	11.48462%	0
<i>Purposes 152, 160, 170 180</i> General Instit Support	54.04980%	0
Neg Adj Factor	50.00000%	n/a
In-state SCHs	0	
Financial Aid (<u>in-state</u>)	67.99800%	<u>0</u>
Total Requirements		<u>\$0</u>

SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

Institution UNC Charlotte Date May 5, 2004
 Program (API#, Name, Level) 40.0404 Meteorology
 Degree(s) to be Granted B.S. Program Year 2004-2005

ADDITIONAL FUNDING REQUIRED - BY SOURCE

	Reallocation of Present Institutional Resources	Enrollment Increase Funds	Federal/State or Other Non-state Funds (Identify)	New Allocations	Total
101 Regular Term Instruction					
1210 SPA Regular Salaries					\$0
1110 EPA Non-teaching Salaries					0
1310 EPA Academic Salaries Coordinator Stipend	0	0	0		0
1810 Social Security					0
1820 State Retirement					0
1830 Medical Insurance (2933*X)					0
2000 Supplies and Materials					0
2300 Educational Supplies					0
2600 Office Supplies					0
3000 Current Services	0				0
3100 Travel					
3200 Communications					
3400 Printing & Binding					
5000 Capital Outlay (Equipment)					0
5100 Office Equipment					
5200 EDP Equipment					
TOTAL Regular Term Instruction	\$0	\$0	\$0	\$0	\$0
151 Libraries					
5000 Capital Outlay (Equipment)		0			0
5600 Library Book/Journal					
TOTAL Libraries	\$0	\$0	\$0	\$0	\$0
189 General Institutional Support					
2000 Supplies and Materials					0
2600 Office Supplies					
3000 Current Services					0
3200 Communications					
3400 Printing & Binding					
5000 Capital Outlay (Equipment)					0
5100 Office Equipment					
5200 EDP Equipment					
TOTAL General Inst. Support	\$0	\$0	\$0	\$0	\$0
TOTAL ADDITIONAL COSTS	\$0	\$0	\$0	\$0	\$0

NOTE: Accounts may be added or deleted as required.

**Projected Funding for New Degree Program
Bachelor of Science in Meteorology
Regular Term 2005-2006
(Based on 2004-2005 Change in Student Credit Hours)**

Program Category	Change in Student Credit Hours			Instructional - Position Funding Factors			Instructional Positions Required		
	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral
Category I				643.72	171.44	138.41	0.000	0.000	0.000
Category II				487.37	249.94	146.74	0.000	0.000	0.000
Category III	81			364.88	160.93	122.95	0.222	0.000	0.000
Category IV				230.52	102.45	70.71	0.000	0.000	0.000

Fringes for faculty salaries
FICA @ 7.65%;
Retirement @ 10.04 %
Medical @ \$3,4323

\$1,063
\$1,395
\$762
<hr/>
\$3,219
<hr/>

Total Positions Required	0.222
Instructional - Position Salary Rate (FY 02)	<u>\$62,573</u>
<i>101-1310</i> Instructional Salary Amount	\$13,891
Other Academic Costs 44.89300%	<u>6,236</u>
<i>Purpose 101</i> Total Academic Requirements	\$20,127
<i>Purpose 151</i> Library 11.48462%	2,311
<i>Purposes 152, 160, 170 180</i> General Instit Support 54.04980%	10,878
Neg Adj Factor 50.00000%	n/a
In-state SCHs 0	
Financial Aid (<u>in-state</u>) 67.99800%	<u>0</u>
Total Requirements	<u>\$33,316</u>

SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

Institution UNC Charlotte Date May 4, 2004
 Program (API#, Name, Level) 40.0404 Meteorology
 Degree(s) to be Granted B.S. Program Year 2005-2006

ADDITIONAL FUNDING REQUIRED - BY SOURCE

	Reallocation of Present Institutional Resources	Enrollment Increase Funds	Federal/State or Other Non-state Funds (Identify)	New Allocations	Total
101 Regular Term Instruction					
1210 SPA Regular Salaries					\$0
1110 EPA Non-teaching Salaries					0
1310 EPA Academic Salaries		13,891	0		13,891
		13,891			
1810 Social Security		1,063			1,063
1820 State Retirement		1,395			1,395
1830 Medical Insurance		762			762
2000 Supplies and Materials		1,416			1,416
2300 Educational Supplies		916			
2600 Office Supplies		500			
3000 Current Services		600			600
3100 Travel		300			
3200 Communications		200			
3400 Printing & Binding		100			
5000 Capital Outlay (Equipment)		1,000			1,000
5100 Office Equipment		0			
5200 EDP Equipment		1,000			
TOTAL Regular Term Instruction	\$0	\$20,127	\$0	\$0	\$20,127
151 Libraries					
5000 Capital Outlay (Equipment)		2,311			2,311
5600 Library Book/Journal		2,311			
TOTAL Libraries	\$0	\$2,311	\$0	\$0	\$2,311
189 General Institutional Support					
2000 Supplies and Materials		3,000			3,000
2600 Office Supplies		3,000			
3000 Current Services		3,500			3,500
3200 Communications		1,750			
3400 Printing & Binding		1,750			
5000 Capital Outlay (Equipment)		4,378			4,378
5100 Office Equipment		2,000			
5200 EDP Equipment		2,378			
TOTAL General Inst. Support	\$0	\$10,878	\$0	\$0	\$10,878
TOTAL ADDITIONAL COSTS	\$0	\$33,316	\$0	\$0	\$33,316

NOTE: Accounts may be added or deleted as required.

**Projected Funding for New Degree Program
Bachelor of Science in Meteorology
Regular Term 2006-2007
(Based on 2005-2006 Change in Student Credit Hours)**

Program Category	Change in Student Credit Hours			Instructional - Position Funding Factors			Instructional Positions Required		
	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral	Undergrad	Masters	Doctoral
Category I				643.72	171.44	138.41	0.000	0.000	0.000
Category II	30			487.37	249.94	146.74	0.062	0.000	0.000
Category III				364.88	160.93	122.95	0.000	0.000	0.000
Category IV				230.52	102.45	70.71	0.000	0.000	0.000

Fringes for faculty salaries
FICA @ 7.65%;
Retirement @ 10.04%
Medical @ \$3432

\$295
 \$387
 \$211

 \$893

Total Positions Required	0.062
Instructional - Position Salary Rate (FY 02)	<u>\$62,573</u>
101-1310 Instructional Salary Amount	\$3,852
Other Academic Costs 44.89300%	<u>1,729</u>
Purpose 101 Total Academic Requirements	\$5,581
Purpose 151 Library 11.48462%	641
Purposes 152, 160, 170 180 General Instit Support 54.04980%	3,016
Neg Adj Factor 50.00000%	n/a
In-state SCHs 0	
Financial Aid (in-state) 67.99800%	<u>0</u>
Total Requirements	<u>\$9,238</u>

SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

Institution UNC Charlotte Date May 4, 2004
 Program (API#, Name, Level) 40.0404 Meteorology
 Degree(s) to be Granted B.S. Program Year 2006-2007

ADDITIONAL FUNDING REQUIRED - BY SOURCE

	Reallocation of Present Institutional Resources	Enrollment Increase Funds	Federal/State or Other Non-state Funds (Identify)	New Allocations	Total
101 Regular Term Instruction					
1210 SPA Regular Salaries					\$0
1110 EPA Non-teaching Salaries					0
1310 EPA Academic Salaries		3,852	0		3,852
1810 Social Security		295			295
1820 State Retirement		387			387
1830 Medical Insurance		211			211
2000 Supplies and Materials		350			350
2300 Educational Supplies		300			
2600 Office Supplies		50			
3000 Current Services		486			486
3100 Travel		300			
3200 Communications		100			
3400 Printing & Binding		86			
5000 Capital Outlay (Equipment)		0			0
5100 Office Equipment		0			
5200 EDP Equipment		0			
TOTAL Regular Term Instruction	\$0	\$5,581	\$0	\$0	\$5,581
151 Libraries					
5000 Capital Outlay (Equipment)		641			641
5600 Library Book/Journal		641			
TOTAL Libraries	\$0	\$641	\$0	\$0	\$641
189 General Institutional Support					
2000 Supplies and Materials		1,016			1,016
2600 Office Supplies		1,016			
3000 Current Services		1,000			1,000
3200 Communications		500			
3400 Printing & Binding		500			
5000 Capital Outlay (Equipment)		1,000			1,000
5100 Office Equipment		200			
5200 EDP Equipment		800			
TOTAL General Inst. Support	\$0	\$3,016	\$0	\$0	\$3,016
TOTAL ADDITIONAL COSTS	\$0	\$9,238	\$0	\$0	\$9,238

NOTE: Accounts may be added or deleted as required.