April 27, 2016

MEMORANDUM

TO:         Jayanth R. Banavar  
             Dean, College of Computer, Mathematical and Natural Sciences

FROM:  Elizabeth Beise  
              Associate Provost for Academic Planning and Programs

SUBJECT:  Proposal to Modify the Ph.D. in Mathematical Statistics by Adding a 
           Biostatistics/Bioinformatics Specialization (PCC Log No. 15058)

At its meeting on April 1, 2016, the Senate Committee on Programs, Curricula and 
Courses approved the proposal to modify the Ph.D. in Mathematical Statistics by adding a 
Biostatistics/Bioinformatics Specialization. A copy of the proposal is attached.

The change is effective Fall 2016. Please ensure that the change is fully described in the 
Graduate Catalog and in all relevant descriptive materials.

MDC/ 
Enclosure

cc:       Andrew Harris, Chair, Senate PCC Committee
           Barbara Gill, Office of Enrollment Management
           Reka Montfort, University Senate
           Erin Taylor, Division of Information Technology
           Pam Phillips, Institutional Research, Planning and Assessment
           Anne Turkos, University Archives
           Linda Yokoi, Office of the Registrar
           Alex Chen, Graduate School
           Wolfgang Losert, College of Computer, Mathematical and Natural Sciences
           Scott Wolpert, Department of Mathematics
College/School: College of Computer, Mathematical and Natural Sciences

Department/Product: Mathematics/Statistics Program

Summary of Proposed Action:
Create a biostatistics/bioinformatics Ph.D specialization within the Statistics Program of the Department of Mathematics. The program has been created and will be operated in cooperation with the Department of Epidemiology in the School of Public Health. The program has been created after communication and input from the University of Maryland School of Medicine and the campus Center for Bioinformatics and Computational Biology. The program is comprised of existing course work from the STAT and EPIB programs.
This is a proposal to broaden the existing Mathematical Statistics (STAT) Ph.D. Program (http://www.gradschool.umd.edu/catalog/programs/stat.htm) at the University of Maryland, College Park (UMCP) by introducing specializations in Biostatistics/Bioinformatics. The content of this proposal was developed by a collaboration of faculty from the participating units, including Professor Grace Yang at UMCP in cooperation with Professor Ming Tan, who was former head of the Division of Biostatistics and Bioinformatics in the Department of Epidemiology and Public Health, School of Medicine (SOM) at University of Maryland – Baltimore (UMB), and Professor Mei-Ling Ting Lee in the Department of Epidemiology and Biostatistics, School of Public Health at UMCP. This document reflects the agreements of the faculty of the Statistics Program in the Department of Mathematics and its department chairman, Professor Scott A. Wolpert, with Professor Robert S. Gold, chairman and the appropriate faculty of the Department of Epidemiology and Biostatistics (EPIB), School of Public Health at UMCP, and Professor Eytan Ruppin, Director of Center for Bioinformatics & Computational Biology (CBCB) at UMCP, as well as Professor Jay Magaziner, head of the Department of Epidemiology and Public Health at UMB and Professor Soren Bentzen, Director of the Division of Biostatistics and Bioinformatics (DBB). The proposed program will be offered by the STAT Program with the participation of the cited units. EPIB and DBB will participate in guiding the program.

The proposed Biostatistics/Bioinformatics specializations will be administered by the Statistics Program at UMCP, and its courses will be taught on the College Park campus by the faculty from both UMCP and the UMB School of Medicine. According to the situations for UMB faculty teaching at UMCP, necessary financial arrangements will be made following the procedures of the participating units. At UMB, the participating unit is the Division of Biostatistics and Bioinformatics. At UMCP campus, in addition to the Statistics Program in the Department of Mathematics, the participating units are CBCB and the Department of Epidemiology and Biostatistics in the SPH. Courses for the program will be available from the participating units with the core courses provided by the STAT program, supplemented by courses provided by the EPIB and CBCB programs.

EPIB and DBB faculty will participate with STAT faculty on an Advisory Committee that will advise the Statistics Program Director on all matters of program policies and operational decisions. EPIB faculty will also participate with STAT faculty on an Admissions Committee and on administering the written exams. Normally students will be identified as in a STAT or EPIB (sub) specialization depending on their initial financial support. Student selections of advisor will require the approval of the Advisory Committee and Statistics Program Director. Faculty from the participating programs will be eligible to advise theses. Normally students will select an advisor in the program providing their initial financial support.

Since faculty expertise already exists and almost all courses required for the proposed program are already regularly offered by the above mentioned units at UMCP and UMB, we believe that this proposed program is a highly efficient and significant way of offering a timely and much needed addition to the graduate program at the University of Maryland.

**TITLE OF PROPOSED PROGRAM:**

The existing STAT Ph.D. Program remains intact. Subject to the usual degree program requirements (see detailed description below), students who complete the proposed specialization will earn their degrees under the following title:

**STAT Ph.D. Program, Biostatistics/Bioinformatics Specialization (STAT-BB Program)**
PERSONNEL AND UNITS INVOLVED:

- The faculty of the Statistics Program in Department of Mathematics at UMCP
- Faculty of the School of Public Health (SPH), Department of Epidemiology and Biostatistics at UMCP
- Faculty of the UM School of Medicine (UMSOM), Department of Epidemiology and Public Health Division of Biostatistics and Bioinformatics (DBB) [These faculty will have affiliate appointments in the UMCP School of Public Health, Department of Epidemiology and Biostatistics]
- Faculty of the Center for Bioinformatics & Computational Biology (CBCB) at UMCP

NOTE: A list of the participating faculty is given in Appendix A of this proposal. Appropriate arrangements will be made based upon need and agreements by the faculty and the administrations according to the situations.

LOCATION OF PROPOSED PROGRAM:
University of Maryland, College Park

STARTING TIME OF PROPOSED PROGRAM:
Fall 2016

RATIONALE:

Biostatistics/Bioinformatics is an important research field in Statistics with immensely broad applications in public health, medical, and biological research. Bioinformatics is an emerging field with rapid development and has significant overlap with Biostatistics. The proposed STAT-BB Program is in response to increasing research opportunities and to educational need. The program will serve the needs of both full time and part-time students. Many current part-time students are supported by the federal government career enhancement program which provides release time and tuition for government workers to attend classes or seek degrees at universities. The demand for the proposed track is high from this audience, for example from students working at government agencies such as NIH, DOD, FDA, NIST, USDA, NSA, Census Bureau, etc.

UMCP is the flagship university in the state of Maryland, and its Mathematics Department is a nationally recognized leading department in the mathematical sciences. The Department has a long-established separate M.A. and Ph.D. program in Statistics. The Statistics Program at UMCP offers a well-recognized high quality graduate degree program. The Division of Biostatistics and Bioinformatics in the School of Medicine, on the other hand, has ongoing needs for training M.A./Ph.D. students in theoretical foundations to work on cutting edge medical research. The Department of Epidemiology and Biostatistics is a required component for national accreditation of Schools of Public Health at UMCP, and as such already offers an accredited Masters in Public Health in Biostatistics. Along with the bioinformatics group in CBCB at UMCP, the combined faculty have the expertise for a quality program. The proposed STAT-BB Program will provide students a wide variety of statistics and bioinformatics courses and a wide variety of research opportunities with faculty in the Statistics Program at UMCP, faculty in the School of Medicine and faculty in EPIB and CBCB at UMCP. The DBB at the UMSOM provides access, through
active research collaborations and biostatistics/bioinformatics consultations, to numerous biomedical research projects that can be sources of financial support, provide experience in data analysis in cutting edge biomedical research, and stimulate new biostatistical research.

The anticipated benefits are significant. Benefits include the following:

a. The STAT-BB Program will respond to the increasing demand for training students in these developing research domains.

b. The STAT-BB program will include late afternoon courses (in addition to courses currently offered by the Statistics Program) accessible to part-time students in metro Washington D.C.

c. The STAT-BB program is a first step toward a possible professional M.A. degree program in Biostatistics/Bioinformatics, and provides the opportunity to apply for large training grants from federal agencies, such as NIH and the NSF.

d. The STAT-BB Program will increase interaction among the faculty from four units providing opportunities for interdisciplinary research projects, and new opportunities for federally funded research.

DESCRIPTION OF PROPOSED PROGRAM:

The STAT-BB Program offers the Doctor of Philosophy degrees for graduate study and research specializations in Biostatistics and Bioinformatics. The program is operated by the Statistics Program within the Mathematics Department with the participation of EPIB faculty on biostatistics and CBCB faculty on bioinformatics at UMCP. The program includes participation of Division of Biostatistics and Bioinformatics faculty at the SOM. STAT faculty will work with EPIB faculty on program admissions decisions and on providing written exams. STAT, appropriate EPIB, CBCB and appropriate SOM faculty will be listed as program faculty. Students may select with advisement an appropriate sequence of courses and a research area to form an individual plan of study under the guidance of a faculty member from STAT, EPIB, CBCB at UMCP or from the DBB/SOM at UMB. The program has the flexibility to accommodate student’s individual background and interests, and offers the opportunity to select courses to supplement the core coursework. Students in this program have opportunities to work on research projects directly with the faculty from the participating programs.

The Program is administratively affiliated with the Department of Mathematics, which maintains the records of all students in the STAT-BB Program and handles correspondence with those applying for admission. Applications for admission must indicate that the student wishes to enter the STAT-BB Program and the appropriate specialization e.g., STAT-BB with (sub) specialization STAT or (sub) specialization EPIB. All participating faculty will be listed in all materials describing the STAT-BB program.

EPIB faculty will participate with STAT faculty and a representative from DBB on an Advisory Committee that will advise the Statistics Program Director on all matters of program policies and operational decisions. EPIB faculty will also participate with STAT faculty on an Admissions Committee and on administering the written exams. The EPIB specialization will have a designated lead faculty member who will coordinate for the EPIB faculty. Students admitted to a (sub) specialization will normally matriculate in that (sub) specialization, and all student selections of advisor will require the approval of the Advisory Committee and Statistics Program Director. Faculty from the participating programs will be eligible to advise theses.
TEACHING & ADVISING:

UMCP courses will be taught at UMCP, and UMB courses will be taught either at UMCP or by real-time video link. Tuition for UMCP students who take PREV or PH courses will transfer to EPH, as per collaborative agreements for courses taken in EPH by UMCP students. Student advising activities may take place on either the UMCP campus or the UMB campus depending on the thesis adviser. Certain Ph.D. students will be working on projects funded by federal agencies - the advising location may depend on the research project.

STUDENTS:

Students can come to the Program as follows:

(a) Students applying for entry to the STAT Program may choose the STAT-Biostatistics/Bioinformatics Program specialization;
(b) Students in SPH at UMCP or UMB with their Master of Public Health with specialization in Biostatistics may choose to continue their doctoral degree training in the STAT-BB Program;
(c) Any students with sufficient training in mathematics and statistics/biostatistics and wishing to pursue their graduate degrees in Biostatistics or Bioinformatics may apply to enter this proposed STAT-BB Program for their training.

It is expected that some students in the STAT-BB program may not have as strong preparation in mathematics as students currently in our STAT Program. Certain Department 400-level courses, such as MATH 410, may serve as preparatory courses for students as necessary.

Possible differences between STAT students and STAT-BB students:

(i) The STAT-BB program may have more part-time students than in the current STAT program.
(ii) The admission of Ph.D. students in STAT-BB program will depend only on academic qualification; admission may not depend on the availability of Department or University funding to the student.

RESOURCES:

Faculty and Courses: For this proposed program, the faculty expertise already exists and almost all courses required are already regularly offered by the STAT and EPIB departments. Supporting letters from Deans Banavar and Clark are attached; each dean is committing budgetary resources to support the program. For UMB faculty teaching at UMCP, the necessary financial arrangements will be made based upon need and agreements by the faculty and the administrations at UMCP & UMB. It should be noted that according to the degree requirements, the Ph.D. students of STAT-BB program can complete their coursework without taking courses from UMB faculty.

Students: Some of the Ph.D. students of the program may be part-time students who will be financially self-supporting, while some will be supported by Teaching Assistantships (TAships) from either the Department of Mathematics or the Department of Epidemiology and Biostatistics. Usually, the TAships from Department of Mathematics will be used to support the Ph.D. students under STAT-BB/STAT specialization, while the TAships from Department of Epidemiology and Biostatistics will support the Ph.D. students under STAT-BB/EPIB specialization.
Currently, the STAT Program annually admits 2-4 new Ph.D. students with TAships. With the establishment of the STAT-BB program, a small combined Admissions Committee consisting of statisticians from the Department of Mathematics and the Department of Epidemiology and Biostatistics will review the applications to the STAT-BB Program and make the admission recommendations. Recommendations for admission with TAships will be done in cooperation. Ph.D. students of the STAT-BB program may be partially supported by faculty research grants or training grants.

In Fall 2013, the current STAT Program had 4 new Ph.D. students. We propose that the STAT-BB program will start with 1-2 new Ph.D. students in Fall 2016. The STAT-BB program is expected to have between 6 and 12 Ph.D. students in an ongoing basis.

APPLICATION & ADMISSION:

See http://www.gradschool.umd.edu/catalog/programs/stat.htm for the same requirement as for the STAT Program. An Admission Committee including representative biostatistics faculty from EPIB will review the applications and make recommendations to the Statistics Program Director.

LIST OF COURSES:

(A) Existing STAT Courses in Math Department:

(See http://www.gradschool.umd.edu/catalog/courses/stat.htm for detailed descriptions)

- STAT 410 Introduction to Probability Theory (3 credits)
- STAT 420 Introduction to Statistics (3 credits)
- STAT 430 Introduction to Statistical Computing with SAS (3 credits)
- STAT 440 Sampling Theory (3 credits)
- STAT 470 Actuarial Mathematics (3 credits)
- STAT 498 Selected Topics in Statistics (1-6 credits)
- STAT 600 Probability Theory I (3 credits)
- STAT 601 Probability Theory II (3 credits)
- STAT 650 Applied Stochastic Processes (3 credits)
- STAT 658 Advanced Applied Stochastic Processes II (3 credits)
- STAT 687 Mini-Course Series in the Mathematical Sciences (1 credits)
- STAT 689 Research Interactions in Statistics (1-3 credits)
- STAT 700 Mathematical Statistics I (3 credits)
- STAT 701 Mathematical Statistics II (3 credits)
- STAT 702 Survival Analysis (3 credits)
- STAT 705 Computational Statistics (3 credits)
- STAT 710 Advanced Statistics I (3 credits)
- STAT 730 Time Series Analysis (3 credits)
- STAT 740 Linear Statistical Models I (3 credits)
- STAT 741 Linear Statistical Models II (3 credits)
- STAT 750 Multivariate Analysis (3 credits)
- STAT 770 Analysis of Categorical Data (3 credits)
- STAT 798 Selected Topics in Statistics (1-4 credits)
- STAT 799 Master’s Thesis Research (1-6 credits)
- STAT 808 Selected topics in Probability (1-4 credits)
- STAT 818 Selected topics in Statistics (1-4 credits)
- STAT 898 Pre-Candidacy Research (1-8 credits)
- STAT 899 Doctoral Dissertation Research (1-8 credits)
(B) Courses offered by a mixture of UMCP & UMB faculty:

STAT 798-1 Design of Biomedical Studies
STAT 798-2 Statistical Methods in Epidemiology
STAT 798-3 Statistical Genetics (linkage and genome-wide association study)
STAT 798-4 Bioinformatics (sequences, genomic, proteomic data analysis, gene network and pathway)
EPIB 650 Biostatistics I (3 credits)
EPIB 651 Biostatistics II (3 credits)
EPIB 652 Categorical Data Analysis (3 credits; more applied focus than STAT 770)
EPIB 653 Applied Survival Data Analysis (3 credits; more applied focus than STAT 702)
EPIB 654 Clinical Trial Analysis (3 credits)
EPIB 655 Longitudinal Data Analysis (3 credits)
EPIB 698 Applied Bayesian Data Analysis (3 credits)
EPIB 6xx Spatial Statistics for Public Health Data
EPIB 6xx Applied Multivariate Analysis
EPIB 898 Pre-Candidacy Research (1-8 credits)
EPIB 899 Doctoral Dissertation Research (1-8 credits)
CMSC 423 Bioinformatic Algorithms, Databases, and Tools (3 credits)
CMSC 701 Computational Genomics (3 credits)
CMSC 702 Computational Systems Biology (3 credits)

NOTE: Usually STAT 702 will be offered in the fall semester, while EPIB 653 will be offered in the spring semester. In each academic year, EPIB 652 will be offered once, and STAT 770, if offered, will not be offered in the same semester as EPIB 652.

DOCTOR OF PHILOSOPHY (Ph.D.) DEGREE REQUIREMENTS:

A Master’s degree is not required for admission to the proposed Ph.D. program. A doctoral student must complete a minimum of 36 hours of formal courses (at least 27 at the 600/700 level) with at least a B average (3.0 on a 4.0 scale); at least 18 of the graduate credits must be taken in Statistics. In addition, the University requires at least 12 hours of STAT 899 or EPIB 899 (Doctoral research) given by any participating faculty member listed in Appendix A as the major advisor. The Ph.D. student must take written examinations in Probability (STAT 410 & STAT 650), Mathematical Statistics (STAT 700-701), and a third exam in Applied Statistics, Biostatistics/Bioinformatics or any field of mathematics. These examinations will take place twice a year in January and August at the same time as the usual qualifying exams of STAT program. The problems required for STAT-BB students in these exams will come from and be graded by the relevant faculty members who have taught those courses. A student may take one or more examinations at a time. The full-time students must pass all three examinations by the middle of the third year. The part-time students must pass all three exams by the end of the fourth year. If successful in the written examinations, the student must pass an oral exam. Administered by the faculty under this proposed joint program, the oral exam usually takes place a year after the student passes the written examination. This exam serves as a test of the student's in-depth preparation in the area of specialization and research potential. Successful completion of the oral exam indicates that the student is ready to begin writing the doctoral dissertation. In addition, the Department requires a reading competence in one foreign language for the Ph.D. To be admitted to candidacy, the Ph.D. student must pass the written examinations and the oral examination. The final step in completion of the doctoral study for a student is to pass the final oral exam on the dissertation.
The following courses are required:
- STAT 410 Introduction to Probability Theory
- STAT 650 Applied Stochastic Processes
- STAT 700 Mathematical Statistics I
- STAT 701 Mathematical Statistics II
- STAT 705 Computational Statistics
- STAT 740 Linear Statistical Models I
- STAT 741 Linear Statistical Models II (STAT 740 is the prerequisite)
- STAT 770 Analysis of Categorical Data
- STAT 702 Survival Analysis
- STAT 899 or EPIB 899 Doctoral Research (12 credits)

In addition, each student is required to take at least three courses (STAT 798-X and EPIB XXX or CMSC XXX) from the List of Courses (Appendix B, Appendix C, and Appendix D). For students who focus their studies on Biostatistics, it is required to take at least two courses out of the following three courses, and at least one course from Appendix B, Appendix C, or Appendix D:

- EPIB 652 Applied Categorical Analysis
- EPIB 653 Applied Survival Data Analysis
- EPIB 655 Longitudinal Data Analysis

Students interested in bioinformatics will complete the required coursework and can select specialized courses such as CMSC 423 Bioinformatic Algorithms, Databases and Tools, CMSC 701 Computational Genomics and CMSC 702 Computational Systems Biology. Interested students can then select a faculty advisor with expertise in computational biology. Interested students will be expected to have a solid background in computer science for this option.

**Policies on Dissertation Advisors and Candidacy Exams:**
(a) Before taking the candidacy exam, each student must officially declare his/her dissertation advisor(s) by informing the Statistics Program Director. Each student will have an *internal* (co)advisor from either STAT or EPIB and may also have an *external* participating faculty member as (co)advisor. The STAT or EPIB (co)advisor will chair the dissertation committee. The Advisory Committee will advise the Statistics Program Director on the suitability of faculty as participating advisors.

(b) Due to the vast breadth of this STAT-BB program, if a student passes the oral candidacy exam under one advisor and later wishes to change dissertation advisor, upon the advice and decision of the Advisory Committee and Statistics Program Director, it may be required that the student first study under the new advisor, then re-take the candidacy exam.
Appendix A

PARTICIPATING FACULTY:
The list of participating faculty will be updated at regular intervals. All participating faculty will be listed in all materials describing the STAT-BB program.

Soren Bentzen, Professor and Director, Division of Biostatistics and Bioinformatics, Department of Epidemiology & Public Health, UMB

Hector Corrada Bravo, Assistant Professor, Computer Science, CBCB, UMCP
Shuo Chen, Assistant Professor, Department of Epidemiology and Biostatistics, UMCP
Hegang Chen, Professor, Division of Biostatistics, Department of Epidemiology&Public Health, UMB
Sridhar Hannenhalli, Associate Professor, Computer Science, CBCB, UMCP
Xin He, Assistant Professor, Department of Epidemiology and Biostatistics, UMCP
Abram Kagan, Professor, Statistics Program, Department of Mathematics, UMCP
Benjamin N. Kedem, Professor, Statistics Program, Department of Mathematics, UMCP
Zia Khan, Assistant Professor, Computer Science, CBCB, UMCP
Mei-Ling Ting Lee, Professor, Department of Epidemiology and Biostatistics, UMCP
Yuan Liao, Assistant Professor, Statistics Program, Department of Mathematics, UMCP
Larry Magder, Professor, Division of Biostatistics, Department of Epidemiology&Public Health, UMB
Joan Jian-Jian Ren, Professor, Statistics Program, Department of Mathematics, UMCP
Eytan Ruppin, Professor, Institute for Advanced Computer Science, Director CBCB, UMCP
Takumi Saegusa, Assistant Professor, Statistics Program, Department of Mathematics, UMCP
Eric V. Slud, Professor, Statistics Program, Department of Mathematics, UMCP
Paul J. Smith, Associate Professor, Statistics Program, Department of Mathematics, UMCP
Tingni Sun, Assistant Professor, Statistics Program, Department of Mathematics, UMCP
Grace Yang, Professor Emeritus, Statistics Program, Department of Mathematics, UMCP
Jing Zhang, Assistant Professor, Department of Epidemiology and Biostatistics, UMCP
Appendix B

SPH GRADUATE COURSES: (See http://www.sph.umd.edu/epib/courses/index.cfm)

EPIB 610 Foundations of Epidemiology (3 credits)
EPIB 611 Intermediate Epidemiology (3 credits)
EPIB 612 Perinatal, Child & Adolescent Health (3 credits)
EPIB 620 Chronic Disease Epidemiology (3 credits)
EPIB 621 Infectious Disease Epidemiology (3 credits)
EPIB 622 Social Determinants of Health (3 credits)
EPIB 623 Epidemiology of Health Disparities (3 credits)
EPIB 641 Public Health and Research Ethics (1 credit)
EPIB 650 Biostatistics I (3 credits)
EPIB 651 Biostatistics II (3 credits)
EPIB 652 Applied Categorical Data Analysis (3 credits)
EPIB 653 Applied Survival Data Analysis (3 credits)
EPIB 654 Clinical Trial Analysis (3 credits)
EPIB 655 Longitudinal Data Analysis (3 credits)
EPIB 6xx Spatial Statistics for Public Health Data
EPIB 6xx Applied Multivariate Analysis
EPIB 698 Applied Bayesian Data Analysis (3 credits)
EPIB 698C Special Topics: Introduction to SAS Statistical Programming (1 credit)
Appendix C

CBCB GRADUATE COURSES: (See http://www.gradschool.umd.edu/catalog/courses/cmsc.htm)

CMSC 423 *Bioinformatic Algorithms, Databases, and Tools* (3 credits)

CMSC 701 *Computational Genomics* (3 credits)

CMSC 702 *Computational Systems Biology* (3 credits)
Appendix D
UMB PREV Graduate Courses (http://lifesciences.umaryland.edu/epidemiology/Requirement Chart.pdf)

PREV 706 Research Informatics: Data Management In Clinical Research
PREV 720 Statistical Methods in Epidemiology
PREV 721 Health Survey Research Methods
PREV 801 Longitudinal Data Analysis
PREV 802 Statistics for Molecular Biology
LETTER OF SUPPORT FOR THE PROPOSED STAT-BB SPECIALIZATION

I am pleased to write in support of the proposal to establish a Biostatistics/Bioinformatics (STAT-BB) specialization within the Mathematical Statistics (STAT) Program. Both Master's and doctoral degrees will be offered.

This proposal is the result of close cooperation between the Statistics faculty, Department of Mathematics, and the faculty of the Department of Epidemiology and Biostatistics, School of Public Health. The proposal benefited from consultations with faculty across the campus and with faculty members of the School of Medicine at the University of Maryland Baltimore.

The STAT-BB specialization benefits the University and the State in several ways. It fosters collaboration among statisticians in CMNS and SPH, thereby strengthening the discipline of Statistics on our campus, and it also opens a new avenue for collaboration between faculty at College Park and UMB. It will provide valuable training of biostatisticians who are much in demand as the biotechnology industry grows in the State.

Launching the STAT-BB specialization will require minimal resources. The faculty who would offer the program are already in place in the Mathematics Department and in the Epidemiology and Biostatistics Department.

Our college views STAT-BB as an exciting new opportunity for our graduate students. We are eager to begin the program as soon as possible.

Sincerely,

Jayanth R. Banavar
Dean
College of Computer, Mathematical and Natural Sciences
January 14, 2016

Robert S. Gold, Chair  
Department of Epidemiology and Biostatistics  
School of Public Health  
University of Maryland  
College Park, MD 20742  

Dear Dr. Gold,

Please accept this letter as an expression of my endorsement of the proposed collaboration between the Department of Mathematics (CMNS) and our Department of Epidemiology and Biostatistics (EPIB) resulting in a new PhD Program specialization in biostatistics as part of the PhD Program in Math / Stat. The fastest growing field in public health today is biostatistics and I expect there will be a large positive response from prospective students for this program. It is encouraging to see this collaboration at a time we do not have the critical mass to mount our own PhD program in this area, but look to future possibilities of creating our own program at the appropriate time. I am also encouraged that this collaborative effort also included input from our colleagues in the Department of Epidemiology and Public Health in the School of Medicine at the University of Maryland, Baltimore and the Center for Bioinformatics & Computational Biology here on our campus. I truly believe this represents a novel collaboration and will result in a very strong program.

To the extent that this program will result in some PhD students working principally with our faculty I have promised to provide support for two graduate assistantships for students who declare EPIB as their departmental affiliation. At the current time I appreciate the opportunity to demonstrate our support of this important effort.

Best regards,

Jane E. Clark, Ph.D.  
Professor and Dean
September 23, 2014

RE: Biostatistics/Bioinformatics Graduate Program

To Whom It May Concern:

The Department of Computer Science (CS) and the Center for Bioinformatics and Computational Biology (CBCB) support the proposal by the Mathematics Department for a graduate Biostatistics/Bioinformatics track (STAT-BB) within the Statistics Program. Depending on availability and circumstances, the faculty of CS and CBCB may consider being advisors for students in the STAT-BB track. Depending on resources and circumstances, CS will work to make a minimal number of seats available in the courses CMSC 423, 701 and 702 available to STAT-BB students.

Sincerely,

Samir Khuller
Professor and Chair

Eytan Ruppin
Professor and Director of CBCB
December 22, 2015

Jane E. Clark, PhD
Professor and Dean
University of Maryland
School of Public Health
College Park, MD 20742

Dear Dr. Clark

I write to enthusiastically endorse the new PhD program in Biostatistics being proposed on the College Park campus. Dr. Larry Magder, one of our faculty participated and provided input on the nature and importance of the program as well as how the program should be structured. Dr. Soren Bentzen, the current Director of the Division of Biostatistics and Bioinformatics in the Department of Epidemiology and Public Health in the UM School of Medicine, also has contributed to the way this new program will be organized and how it will relate to his division in the department. Building upon our current efforts at collaboration such a program provides another avenue through which our students may get access to advanced courses in biostatistics and other faculty members as part of their training.

I fully support this new program and hope that students and faculty from both of our programs will benefit from this collaboration. I look forward to hearing more about the proposed program as it works its way through the approval mechanisms.

Sincerely

Jay Magaziner, PhD, MSHyg
Professor and Chair
Department of Epidemiology and Public Health
School of Medicine, University of Maryland
February 4, 2016

To: Dr. Scott Wolpert

From: Robert S. Gold, Professor and Chair

Re: Letter of Support for Collaborative PhD Program in Biostatistics

It is my pleasure to write this letter of background and support to add to your application proposal to approve a new specialization in the PhD Program in Biostatistics.” To others ultimately receiving this letter, I want to verify that the Departments of Mathematics (CMNS) and Epidemiology and Biostatistics (SPH) have been working jointly on crafting this program for more than four years. There has also been involvement with select others on this campus as well as representatives of the Department of Epidemiology and Public Health in the School of Medicine and UMB. Attached to the proposal will be a number of letters of support including one from the Dean of the School of Public Health (College Park) and the Chair of the Department of Epidemiology and Public Health (Baltimore).

Collectively we believe there is a role for this program on our campus and an opportunity for collaboration that includes not only programs on our campus but across the campuses in agreement with MPowering the State.

The faculty of the Department of Epidemiology and Biostatistics at University of Maryland School of Public Health are committed to this collaboration and success with this program. I will be pleased to answer any questions about this collaboration as necessary as the proposal moves through the PCC process on this campus.
Dear CMNS PCC Committee,
I am writing as Department Chair. The STAT program is guided by our statistics faculty and resources are provided from the Mathematics Department budget. The course requirements of the STAT BB program overlap with the requirements of the STAT and AMSC programs. The Department will provide the resources to regularly offer the STAT BB required courses. With current tight budgets, there is no near term plan to increase the offerings of graduate STAT courses. At this time the Department will provide one admissions slot per year with TA funding to the STAT BB program. With current tight budgets there is no plan to significantly modify this number.
Scott Wolpert