Approved by the Regents
May 16, 2013

PROMOTION RECOMMENDATION
The University of Michigan
School of Public Health
Department of Biostatistics

Thomas M. Braun, associate professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health, and associate professor of dentistry, without tenure, School of Dentistry, is recommended for promotion to professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health, and professor of dentistry, without tenure, School of Dentistry.

Academic Degrees:

Ph.D.	1999	University of Washington
M.S.	1996	University of Washington
B.B.A.	1990	University of Wisconsin

Professional Record:

2008-present	Associate Professor, Department of Biostatistics, University of Michigan
2008-present	Associate Professor, Department of Periodontics and Oral Medicine, School of Dentistry
2005-2008	Assistant Professor, Department of Biostatistics, University of Michigan
1999-2005	Assistant Research Professor, Department of Biostatistics, University of Michigan
1990-1994	Senior Actuarial Assistant, Metropolitan Life Insurance Company, Mt. Prospect, IL

Summary of Evaluation:

Teaching -- Since his arrival at Michigan, Professor Braun has made a solid contribution to our teaching program. He has taught 500 and 600 level courses and has obtained excellent ranking in all courses. His skill and excellence in teaching was one of the major reasons that he transferred from a research to a tenure track appointment. Even though students find his courses challenging, he still obtains superior evaluations. At a recent open house for prospective students, Professor Braun's excellent teaching skills were observed. He presented a fascinating segment on dose escalation studies and multivariate analysis of data on periodontal disease, and the students were captivated with his dazzling graphics and revealing substantive discussion that showed his ability to make the material exciting to students.

Professor Braun currently supervises four Ph.D. students and five have completed their Ph.D. degrees under his supervision. He supports several other students and serves on numerous doctoral dissertation committees. He also mentors students in the School of Dentistry as well as On Job/On Campus students.

Research -- Professor Braun has an impressive research record and has maintained a good balance of methodological and collaborative research publications. He has 82 published articles, 20 methodological in nature and 62 research articles in substantive journals (the larger share of the collaborative articles reflects his time in rank as a research assistant professor). He has 13 first authored papers in methodological journals and five with his doctoral students as first author. The Department of Biostatistics regards these as equivalent to first authored papers. His methodological papers have appeared in very strong journals such as *Journal of the American Statistical Association*, *Biometrics*, and *Statistics in Medicine*. The substantive articles also show that he had a lead role in many of these collaborative publications. He has several more submitted and under preparation as first author, or his student as a first author. By any measure of counting this is an impressive record.

Professor Braun's methodological research covers three major areas: design and analysis of early phase clinical trials, statistical methods for dentistry, and nonparametric significance tests. His work on dose

escalation studies is informed by his involvement in bone marrow transplant therapy. He has developed a Bayesian approach for determining optimal dose and length of administration of drugs to be both effective and safe. His series of papers on this topic spanning the period 2002 to 2010 are extremely well cited and he is a very well established innovator in this area.

Professor Braun has brought his expertise on group randomized trial to multivariate problems in dentistry with multiple variables measured at the tooth level within each patient based on fillings, tooth type, chewing patterns, etc. Two of the papers based on this work are currently under review and will most likely be published soon as both received highly positive reviews. He continues his work that began with his dissertation topic on nonparametric tests of significance for group-randomized trials. This area appears to lend itself to numerous generalizations and incorporation of design complexities.

His collaborative research has centered on cancer research and dentistry. Professor Braun's collaborative and methodological innovations are intimately linked with each other.

Professor Braun has been very successful in obtaining external funds. Typically, most of his funding is generated though collaborative grants. He obtained an R01 as a PI in 2010. Earlier he obtained an NIH R03 to address various statistical problems in dentistry. It is clearly evident that his research is of very high caliber, is relevant to practical problems in public dental health, and is making a superb contribution to the department, school and university.

Recent and Significant Publications:

Braun, T.M., Jia. N. A Generalized Continual Reassessment Method for Two-Agent Phase I Trials. *Statistics in Biopharmaceutical Research* (in press, 2013).

Westgate, P.M., Braun, T.M. An Improved Quadratic Inference Function for Parameter Estimation in the Analysis of Correlated Data. *Statistics in Medicine*. Dec. 2012. [Epub ahead of print]

Braun, T.M., Kang, S., Taylor, J.M.G. A Phase I/II Trial Design when Response is Unobserved in Subjects with Dose-Limiting Toxicity. *Statistical Methods in Medical Research*. Nov 1, 2012. [Epub ahead of print]

Lee, O.E., Braun, T.M. Permutation Tests for Random Effects in Linear Mixed Models. *Biometrics*, 68:486-493, 2012.

O'Kray, H., Marshall, T.S., Braun, T.M. Supplementing Retention Through Crown/Preparation Modification: An In Vitro Study. *Journal of Prosthetic Dentistry*, 107:186-190, 2012.

Westgate, P.M. and Braun, T.M. Improving Small-Sample Inference in Group Randomized Trials with Binary Outcomes. *Statistics in Medicine*, 30:201-210, 2011.

Braun, T.M. and Wang, S.A. A Hierarchical Bayesian Design for Phase I Trials of Novel Combinations of Cancer Therapeutic Agents. *Biometrics*, 66:805-812, 2010.

Service -- Professor Braun has been an energetic and helpful member of a number of departmental committees, including the candidacy, curriculum and admissions committees, which are perhaps the most important and have the highest workload. He has been very active professionally as a referee and serving on the Data Safety Monitoring Board. He has served on several NIH review panels and is well established in the profession and is highly visible. Professor Braun also served as an associate editor for the journal *Lifetime Data Analysis*, a leading outlet for research in survival analysis. He is active with the International Biometrics Society and has been a member of the Regional Advisory Committee, the major policy committee for the Eastern region of that society. He is also active in the American Society of Clinical Oncology.

External Reviewers:

Reviewer (A): "Dr. Braun has not only made important contributions to statistical methodology, but he is also a valued collaborator. Statisticians who can do statistical methodology and contribute as part of a collaborative team are uncommon; those who can contribute at the level of Dr. Braun are rare. [His] record of independent research, collaborative research, teaching and service are exemplary and in my opinion, there is no doubt he would be promoted to full professor at [my university]."

Reviewer (B): "...there is a dearth of statisticians engaged in oral and dental health research. Tom appears to have found a new niche where there are many outstanding, interesting and challenging statistical methodology issues. [He] holds much promise to continue to be productive with publications of important new knowledge in statistical methods, especially in design of early phase clinical trials in oncology..."

Reviewer (C): "Dr. Braun has a very strong publication record...and has made substantial contributions that are at the forefront of research...excellent communicator...I am quite impressed with the variety of innovative teaching methods that he describes in his teaching statement. I plan to adopt some of these methods next time I teach."

Reviewer (D): "Professor Braun's creativity and stamina has led him to start new endeavors n the analysis of periodontal data and circular statistical methods. What is particularly extraordinary about Professor Braun is that he stands at the very top in a plurality of regions: two methodological research areas...collaborative research...service and teaching."

Reviewer (E): "Dr. Braun has clearly demonstrated that he is a highly valued and essential contributor to clinical research. A major strength is the ability to conduct rigorous, valid, and appropriate statistical analysis on clinically relevant and pressing problems. This is an ability that is quite rare. His recent RO1 award...demonstrates a very high level of achievement in this field with rigorous peer review."

Reviewer (F): "Dr. Braun's research productivity is highly impressive, both in mainstream statistical methods contributions and his collaborations in bone marrow transplant and dental research...I find it impressive that he ensured that his research goes beyond filling journal pages to being implemented in clinical trials...excellent record of mentoring PhD students."

Summary of Recommendation:

In summary, Professor Braun has a very strong record of research, teaching and service. He is a very dependable citizen of the department, school and the university. Through his connections with the Cancer Center and the School of Dentistry, he brings unique strengths to the department and school. We enthusiastically recommend Thomas M. Braun for promotion to professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health, and professor of dentistry, without tenure, School of Dentistry.

Martin A. Philbert, Ph.D.
Dean, School of Public Health

Peter J. Polverini, DDS, DMSc
Dean, School of Dentistry

May 2013