Approved by the Regents
May 19, 2011

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Kerby A. Shedden, associate professor of statistics, with tenure, College of Literature, Science, and the Arts, and associate professor of biostatistics, without tenure, School of Public Health, is recommended for promotion to professor of statistics, with tenure, College of Literature, Science, and the Arts, and professor of biostatistics, without tenure, School of Public Health.

Academic Degrees:

Ph.D.	1999	University of California, Los Angeles
B.S.	1994	University of Michigan

Professional Record:

2005	Associate Professor, Department of Statistics and Department of Biostatistics, University of Michigan
2004	Assistant Professor, Department of Biostatistics, University of Michigan
1999 – 2005	Assistant Professor, Department of Statistics, University of Michigan

Summary of Evaluation:

Teaching – Professor Shedden is an outstanding teacher in and out of the classroom. He is especially passionate about teaching undergraduate students and has implemented novel pedagogical approaches in his classes. He has also developed and redesigned a number of courses in applied and computational statistics that are central to the department's curriculum. He also has an excellent record of doctoral student supervision and undergraduate student mentoring. In 2010 he received both the LSA Excellence in Education Award and the Excellence in Concentration Advising Award.

Research – Professor Shedden is a prolific and accomplished researcher. His research combines novel statistical methodology and cutting edge biomedical research as he addresses important biological questions with a high level of statistical rigor. In particular he is an expert on statistical issues in high-throughput data analysis. His collaboration with scientists at Michigan has been highly successful and provides an inspiring example of interdisciplinary research. Most of his articles have appeared in high-impact domain-science journals.

Significant Publications:

"Chemical address tags of fluorescent bioimaging probes," with G. Rosania, *Cytometry A*, 77(5), 2010, pp. 429-438.

"Gene expression associations with the growth inhibitory effects of small molecules on live cells: Specificity of effects and uniformity of mechanisms," with Y. Yang and G. Rosania, *Statistical Analysis and Data Mining*, 2(3), 2009, pp. 175-185.

"Regularized finite mixture models for probability trajectories," with R. A. Zucker, *Psychometrika*, 73(4), 2008, pp. 625-646.

"Gene expression-based survival prediction in lung adenocarcinoma: A multi-site, blinded validation study," with J. M. G. Taylor, et al., *Nature Medicine*, 14(8), 2008, pp. 822-8277.

Service – Professor Shedden has a stellar service record. He has been co-advisor of the Statistics Concentration and chair of the Undergraduate Curriculum Committee in Statistics for the past four years. Under his leadership the department has made steady progress in its undergraduate programs, especially in course offerings and student support. He was a major contributor in the successful launch of the new Informatics concentration in LSA. He chairs the Steering Committee for this program and is the advisor of the data mining/information analysis track and the Life Sciences informatics track. Professor Shedden is also a major contributor to the Bioinformatics Graduate Program in the School of Medicine.

External Reviews:

Reviewer (A)

"Dr. Shedden has been highly productive, especially in the past two years, as a collaborator on the analysis of data from leading edge technologies. He has been lead author on publications in the area of image analysis, genetics and high dimensional data analysis. He has made significant contributions to research in cancer gene expression. The 2008 *Nature Medicine* paper is an outstanding achievement, as is the earlier paper (2005) in *Clinical Cancer Research*. Dr. Shedden is also consistently publishing purely statistical papers, as the lead author."

Reviewer (B)

"He has clearly developed long-term collaborations with a variety of investigators who, with his help, are pushing the frontiers of science. He is a terrific statistical bioinformatician who can be counted on, through his collaborations and broad knowledge of technology and statistics, to help keep the University of Michigan at the cutting edge of developments in the biological sciences."

Reviewer (C)

"Dr. Shedden has many creative ideas and is extremely energetic. I think his success is setting up a role model for a new generation of biostatisticans to follow: instead of merely answering questions that biologists ask, biostatisticians should train themselves deep enough to ask important biological questions and formulate them in an attackable manner."

Reviewer (D)

"I have been an admirer of his innovative work, and his extraordinary capability in collaborative research. … Dr. Shedden is among the small group of brilliant statisticians who can do both deep methodological work and sophisticated application research in biomedical sciences."

Reviewer (E)

"Based on his productivity I can only imagine the glowing terms with which his collaborators would surely evaluate his scientific role. … The variety of research topics is similarly impressive, from genomics to chemical informatics to proteomics and beyond. … His leadership on the 2008 *Nature Medicine* paper on survival after lung cancer places him in the center of the debate about genomics and personalized medicine."

Reviewer (F)

"I rate Dr. Shedden at the forefront of statisticians working in the area of modeling biological systems and the analysis of high-dimensional data. He is an international leader in development of statistical methods for image analysis and cytometry and is widely recognized as a leader in

the development of high-dimensional gene expression based classifiers for survival risk of cancer patients."

Reviewer (G)
"His work reflects a mixture of contributions combining innovation in statistical methodology and contributions demonstrating his applied collaborative work. He seems to be involved in all of the modern data-intensive technologies that have revolutionized (and continue to revolutionize) biology…"

Reviewer (H)
"This is perhaps the best indication of a fully mature Statistician: he is contributing not just incremental advances to established theory within his own discipline, but effectively transforming standard tools through thoughtful appreciation of empirical issues in another."

Reviewer (I)
"…Dr. Shedden has established himself as a leader in statistical research for bioinformatics/ cheminformatics. His papers make it obvious that he has immersed himself in this culture to a greater extent and to much greater effect than most statisticians who work at this interface."

Summary of Recommendation:
Professor Shedden has established himself as a leader in bioinformatics. He is also an excellent teacher and mentor, who is especially committed to undergraduate education. He has provided valuable service to his department, the College, and to the University. The Executive Committees of the College of Literature, Science, and the Arts and the School of Public Health and we recommend that Associate Professor Kerby A. Shedden be promoted to professor of statistics, with tenure, College of Literature, Science, and the Arts, and professor of biostatistics, without tenure, School of Public Health.

Terrence J. McDonald
Arthur F. Thurnau Professor,
Professor of History and Dean
College of Literature, Science, and the Arts

Martin A. Philbert
Professor of Toxicology and Dean,
School of Public Health

May 2011