

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

Approved by the Regents

May 17, 2007

Kristen S. Moore, assistant professor of mathematics, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of mathematics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	1999	University of Connecticut
M.S.	1996	University of Connecticut
B.S.	1990	Bucknell University

Professional Record:

2001 – present	Assistant Professor, Department of Mathematics, University of Michigan
1999 – 2001	Three-year Assistant Professor, Department of Mathematics, University of Michigan

Summary of Evaluation:

Teaching – Professor Moore has established a reputation as an excellent teacher over a wide variety of courses. Once she was appointed to a tenure-track assistant professorship in the Actuarial and Financial Program, she concentrated on teaching courses associated with this program and has done a superb job as a classroom instructor and in course development. Her receipt of an LSA Excellence in Education award in 2003 attests to her success as a teacher. She has also been active in directing research at both the undergraduate and graduate level – supervising summer research projects and directing Ph.D. thesis research. For the past three years she has been co-organizer of the weekly seminar in Actuarial and Financial Mathematics.

Research – In addition to meeting the criteria for tenure at Michigan, Professor Moore has acquired the professional qualification of Fellow of the Society of Actuaries. She has established a robust research program in actuarial-financial mathematics, which is quite different from her thesis research. This is an impressive achievement. As an expert in numerical methods for the solution of partial differential equations, she is poised to continue making substantive contributions. Her research is particularly timely since it addresses certain problems of pension portfolio management. These problems have become extremely important in the last ten years due to the widespread move from defined benefit to defined contribution pension plans.

Recent and Significant Publications:

“Optimal insurance in a continuous-time model,” with V. R. Young, *Insurance: Mathematics and Economics*, 39(1), 2006, pp. 47-68.

“Optimal design of a perpetual equity-indexed annuity,” with V. R. Young, *North American Actuarial Journal*, 9(1), 2005, pp. 57-72.

“Large torsional oscillations in a suspension bridge: multiple periodic solutions to a nonlinear wave equation,” *SIAM Journal on Mathematical Analysis*, 33(6), 2002, pp. 1411-1429.

“The global structure of periodic solutions of a suspension bridge mechanical model,” with P. J. McKenna, *IMA Journal of Applied Mathematics*, 67(5), 2002, pp. 459-478.

Service – Professor Moore has been quite active. She has served on the Executive Committee and has been very involved for the past three years in undergraduate counseling. During winter term 2006, for example, she was the counselor for almost a quarter of the over three hundred plus appointments scheduled. The primary reason for her popularity is that she is very effective in counseling actuarial and financial mathematics majors, who comprise 50% of all math majors. She has also served on University and national committees to advance the representation of women in the academic community.

External Reviews:

Reviewer (A)

“Professor Moore has moved disciplines from applied mathematics to actuarial science. ...this is essentially a new and different discipline. ... I would rank her as one of the top two or three researchers in actuarial science in her peer group in North America. ... There is a real scarcity of actuarial academics that are strong researchers, good teachers and are willing to [do] all the other stuff. Professor Moore is one of the very few.”

Reviewer (B)

“The research of Professor Moore has already made important contributions with one publication in the top-tier outlet, the *North American Actuarial Journal*, as well as two in *Insurance: Mathematics and Economics*. ... This rate of productivity is laudable. She is the best untenured actuarial science professor in North America.”

Reviewer (C)

“All three areas in which Kristen has worked: models for engineering structures, nonlinear PDE and quantitative finance, are areas central to applied analysis and deserve representation in a research-intensive department. ... I recommend her without reservation.”

Reviewer (D)

“Professor Moore has authored or co-authored thirteen research papers in the past seven years; six of them in the area of actuarial/financial mathematics. ... I would also expect that the two papers she submitted will be accepted in the future, based on their quality. Her publication record is impressive...”

Reviewer (E)

“...Professor Moore should continue to be a very good fit at Michigan... As an actuary, she has excellent background, training and experience to support the actuarial teaching function. As a mathematician, she fits into a Mathematics Department comfortable. ... I am pleased to recommend Dr. Moore for promotion and tenure.”

Reviewer (F)

“...she skillfully uses a broad range of tools in clever ways to answer concrete and significant problems arising from real practice. ... She does a very complete job of examining all important aspects of the problem at hand, and uses whatever techniques are needed to carry this out. I think this is good solid applied mathematics, requiring a high level of judgment, technical skill, and ingenuity.”

Reviewer (G)

“I am very impressed with her scholarly activity and accomplishments since 2001. I believe she has demonstrated excellent potential as a scholar and leader, and would make an excellent colleague. I have no doubt that she would be successful were she to seek a similar promotion and tenure at my university, or at any other university...”

Reviewer (H)


“There is a world-wide shortage of qualified actuarial professors. I feel certain that any other actuarial school in North America would grant Kristen tenure and promotion. Indeed, I can assure you that [my university] would be very interested in making an offer to Kristen, if she would be interested.”

Reviewer (I)

“Dr. Moore has worked on interesting problems in the interface of finance and insurance. She has good modeling and qualitative skills. She provides thorough and intuitive explanations of the result she produces. ... I warmly support her case.”

Summary of Recommendation:

Professor Moore has a substantial research program. She is also an excellent teacher and citizen. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Kristen S. Moore be promoted to the rank of associate professor of mathematics, with tenure, in the College of Literature, Science, and the Arts.



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

May 2007