PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF COMPUTATIONAL MEDICINE AND BIOINFORMATICS
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF BIOSTATISTICS

<u>Maureen Sartor, Ph.D.</u>, associate professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, Medical School, and associate professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health is recommended for promotion to professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, Medical School, and professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health.

<u>Academic Degrees:</u>
2007	Ph.D.	University of Cincinnati
2000	M.S.	North Carolina State University
1998	B.S.	Xavier University

<u>Professional Record:</u>
2015-present	Associate Professor of Computational Medicine and Bioinformatics, University of Michigan
2015-present	Associate Professor, Computational Medicine and Bioinformatics, University of Michigan
2012- 2015	Assistant Professor, Computational Medicine and Bioinformatics, University of Michigan
2012-2015	Assistant Professor, Biostatistics Department, University of Michigan
2009 -2012	Research Assistant Professor, Department of Biostatistics, University of Michigan
2008 - 2012	Research Assistant Professor, Computational Medicine and Bioinformatics, University of Michigan

<u>Summary of Evaluation:</u>
<u>Teaching:</u> Dr. Sartor has served as the co-director of the Bioinformatics Graduate Program (BGP) since 2016, and is a co-principal investigator of the new National Institute of General Medical Sciences (NIGMS) T32 Pre-doctoral Bioinformatics Training program, which will supersede the 17 year NIGMS Bioinformatics Training Program precursor award. In her role as the co-director of approximately 170 students in the BGP, she assists the co-director and associate chair to oversee and manage this vibrant and growing cohort in all aspects, spanning from admissions, onboarding and orientation, classes and curricular development, appointment of graduate student instructors, candidacy and preliminary examinations, progress toward degree, timely graduation, and post-graduation placement, and alumni relations. Dr. Sartor has lead the BGP Preliminary Examinations Committee since 2013, has developed and organized two new bioinformatics courses, and served on the master's admissions committee for the Department of Computational Medicine and Bioinformatics. She has mentored Ph.D., masters, and undergraduate students, and early career instructional, research, and lecturer faculty. Dr. Sartor was awarded an internal Faculty Leading Change grant from ADVANCE from 2015-2016, with three of her colleagues, which entailed making positive changes and establishing standard procedures in the department.

Dr. Sartor has been a course leader of Analysis of High-throughput Molecular Genomic and Epigenomic Data (BIOINF 545/BioStat 646) for more than 10 years. She has also created two new courses: Skills to Succeed in Bioinformatics (BIOINF 500) and Rigor and Transparency to Enhance Reproducibility for Computational Biomedical Scientists (BIOINF 504) as part of the Bioinformatics T32 training program. Dr. Sartor has served as a member of the Precision Health Initiative's Education and Training Taskforce since 2018. As part of this group, she developed a new Graduate Certificate Program in Precision Health, organized the Precision Health seminar series, and mentors a certificate program graduate student. She also serves on the Executive Committee for the Genome Science Training Program.

Research: The focus of Dr. Sartor's laboratory is developing bioinformatics methods and tools for the analysis and interpretation of high-throughput molecular biology data, interfacing data science and domain-specific knowledge to make clinically meaningful discoveries. Her laboratory makes heavy use of various types of omics data, which include transcriptomics (RNA), genomics (DNA), epigenomics (DNA and DNA structure modifications) and regulomics (e.g., transcription factor binding to regulate gene expression). She continues to advance both methodological and applied research, with a nationally and internationally recognized body of work. She is also highly recognized for her significant team research contributions in the areas of epigenomics, cancer bioinformatics, and environmental bioinformatics, both at the University of Michigan and nationally. Her research is well-funded by the NIH, with continuous funding in the areas of head and neck cancer (HPV bioinformatics) and Environmental Health Science.

For more than nine years, Dr. Sartor has served as the lead of bioinformatics support for the university's NIEHS-funded P30 Center, the Michigan Center on Lifestage Environmental Exposure and Disease (M-LEEaD). This center, which supports approximately 60 M-LEEaD Center faculty members, aims to improve our understanding of the contribution of environmental exposures toward the etiology of chronic diseases and conditions like asthma, neurodegenerative diseases, metabolic syndrome and prematurity. In the new grant cycle, she will be lead of the Pan-Omics and Data Science Facility Core, which stresses her team's expertise in integrative omics analysis and advanced data science and machine learning techniques, to move beyond single omics and standard analyses. Dr. Sartor has 139 manuscripts published, 44 publications have occurred while in rank. She has presented at international conferences (ISMB, EEB) and has established a growing reputation in these venues. She has given invited lectures in HPV Bioinformatics at invited conferences in Prague and Monte Carlo.

Recent and Significant Publications:
Qin T, Koneva L, Liu Y, Zhang Y, Virani A, Rentschler K, Chepeha D, Carey T, Rozek LS, Sartor MA: HPV oncogene E6* influence on host transcriptome is associated with carcinogenic pathways, tumor size and survival in head and neck cancer. *Head and Neck*, 2020.

Lee CT, Cavalcante RG, Lee C, Qin T, Patil S, Wang S, Tsai ZTY, Boyle AP, Sartor MA. Poly-Enrich: count-based methods for gene set enrichment testing with genomic regions. *NAR Genom Bioinform*. 2020; 2(1):lqaa006.

Koneva LA, Zhang Y, Virani S, Hall PB, McHugh JB, Chepeha DB, Wolf GT, Carey TE, Rozek LS, Sartor MA: HPV integration in HNSCC correlates with survival outcomes, immune response signatures, and candidate drivers. *Mol Cancer Res*. 16(1):90-102, 2018.

Cavalcante RG, Patil S, Park Y, Rozek LS, Sartor MA. Integrating DNA methylation and hydroxymethylation data with the mint pipeline. *Cancer Res*. 77(21):e27-e30, 2017.

Zhang Y, Koneva LA, Virani S, Arthur AE, Virani A, Hall PB, Warden CD, Carey TE, Chepeha DB, Prince M, McHugh JB, Wolf GT, Rozek LS, Sartor MA. Subtypes of HPV-positive head and neck cancers are associated with HPV characteristics, copy number alterations, PIK3CA mutation, and pathway signatures. *Clinical Can Res*. 22(18):4735-45, 2016.

Service: Dr. Sartor has recently been appointed as the Department of Computational Medicine and Bioinformatics Diversity, Equity and Inclusion team leader. She serves on the Faculty Advisory Board for the Biomedical Research Core Facilities, the Executive Committee of the Genome Sciences Training Program, and is a member of the Advisory Committee for the University of Michigan Skin Biology and Disease Resource-based Center. For several years, she served as scientific director and co-founder of the University of Michigan Epigenomics Core in the Medical School, and has made significant leadership contributions to the Cancer Center Bioinformatics Core at research and at the advisory levels. Dr. Sartor is an editorial board member of *Genetics and Genomics* for *Scientific Reports*. She serves as a study section member for the NIH, as well as international foundations, and is a standing member of the NIH Cancer Biomarkers Study Section. Her national recognition also includes invitations to serve on external advisory boards at the University of Cincinnati Center for Environmental sGenetics, and the University of North Dakota in the Host-pathogen interactions Center of Biomedical Research Excellence. Dr. Sartor has served as a reviewer of international grants for Israel, Netherlands, United Kingdom, and Germany, and national grants for Florida and Pennsylvania, in the areas of head and neck cancer and omics/bioinformatics analysis. She is very well respected nationally and internationally.

External Reviewers:
Reviewer A: "Dr. Sartor has a prolific record of grant funding. She has matriculated 5 students and is currently advising two more. Her post-docs have gone off to solid positions in industry and academia, including a tenure-track position at U. Pitt. She does her share of teaching and service, including an impressive number of thesis committees. She has almost as many publications as I do in 17 fewer years."

Reviewer B: "…the body of work that Dr. Sartor has generated during the course of her career is both innovative and highly impactful. In particular, her work has been able to demonstrate the power of using modern bioinformatics methods to analyze genome-wide regulatory and epigenomic data in order to inform diagnostic and therapeutic strategies in both the cancer and environmental health domains. In doing so, Dr. Sartor's work is able to simultaneously advance the state of knowledge and practice in all of the aforementioned areas."

Reviewer C: "The strong research support that she receives from these external grants and the high levels of publication record place her in the very top tier of her peers, and bodes well for her research potential…Professor Sartor has demonstrated an exceptionally high level of research productivity, scholarship, mentorship and professional services, for her career stage. Her package is outstanding and certainly warrants a speedy promotion to Full Professor. I fully support and urge you to grant the promotion. I think that she would receive full professorship at my institute without a doubt."

Reviewer D: "I would view Dr. Sartor as being one of the leading researchers in the important and growing area of epigenetic bioinformatics and she would absolutely meet and exceed requirements for promotion to instructional track tenured full professor at my institution."
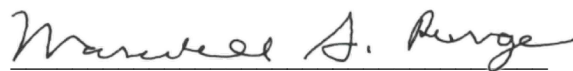
Reviewer E: "Dr. Sartor was trained in Biostatistics and Biomathematics. In her research track record, she's well-known for genome-wide regulatory and epigenomics (methylation in particular) data analysis. She also publishes a set of gene set enrichment analysis methods for large sets of genomic regions. Many of the software tools she has developed (e.g. methylSig and chipenrich) are popular and well-cited in the field."

Reviewer F: "Dr. Sartor is clearly that perfect mix of team player who, while making individual research contributions, also stands out for her many contributions to her profession. She has a breath of expertise that allows her to make contributions ranging from clinical research, to environmental health to methods development in computational biology…clearly demonstrating interdisciplinary impact. Her commitment to diversity and mentoring is evidenced by her service as a member of the U of M NIEHS T32 executive committee, which has a strong track record and commitment to recruiting diverse students; a commitment that will undoubtedly continue to impact the next generation of bioinformaticians in the coming years."

Reviewer G: "Dr. Sartor has an excellent publication record and productivity in her area of research. She seems to be a real treasure at University of Michigan with multiple collaborations and a very solid service record. Nationally, I am aware of only a few people who focus on head and neck cancer with her skill set in bioinformatics paired with cell biology."

Summary of Recommendations:
Dr. Sartor is an exceptional team scientist who utilizes her expertise in bioinformatics methods and analytical tools to interpret high throughput molecular biological data and interfacing biological data in understanding omics. She is an outstanding educator with significant service. I am pleased to recommend Maureen Sartor, Ph.D. for promotion to professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, Medical School, and professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health.

Marschall S. Runge, M.D., Ph.D.
Executive Vice President of Medical Affairs
Dean, Medical School

F. DuBois Bowman, Ph.D.
Dean, School of Public Health

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