



# 37<sup>th</sup> Annual Ostrom Lecture



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## The Art (and Science) of Biomedical Data Integration

Modern biomedicine has generated unprecedented amounts of data. A combination of clinical, environmental and public health information, proliferation of associated genomic information, and increasingly complex digital information have created unique challenges in assimilating, organizing, analyzing and interpreting such structured as well as unstructured data. Each of these distinct data types provides a different, partly independent and complementary, high-resolution view of various biological processes. Modeling and inference in such studies is challenging, not only due to high dimensionality, but also due to presence of structured dependencies (e.g. pathway/regulatory mechanisms, serial and spatial correlations etc.). Integrative analyses of these multi-domain data combined with patients' clinical outcomes can help us understand the complex biological processes that characterize a disease, as well as how these processes relate to the eventual progression and development of a disease. This talk will cover statistical and computational frameworks that acknowledge and exploit these inherent complex structural relationships for both biomarker discovery and clinical prediction to aid translational medicine. The approaches will be illustrated using several case examples in oncology.

**Wednesday, April 11th, 2018  
7:00 pm in Wegner G50**

Free and open to the public, reception immediately following in Neill 216

Hosted by Washington State University Department of Mathematics & Statistics

*The Annual Theodore G. Ostrom brings internationally renowned mathematics scholars to campus each spring. The lectures honor Emeritus Ostrom, who retired from WSU in 1981 after 21 years on faculty.*