

## DBDS Workshop in Biostatistics

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UT09](https://stanford.zoom.us/j/98003174166?pwd=ZVBEdkNBbDdWdTBMUHIKWGpRa3QxUT09)

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<b>DATE:</b>	January 14, 2021
<b>TIME:</b>	2:30-3:50pm
<b>TITLE:</b>	<i>Sex, Drugs and Radiomics of Brain Cancer</i>
<b>SPEAKER:</b>	<b>Kristin Swanson</b> Professor of Neurosurgery Mayo Clinic

### Abstract:

Glioblastoma are notoriously aggressive, malignant primary brain tumors that have variable response to treatment. This presentation will focus on the integrative role of 1) biological sex-differences, 2) heterogeneity in drug-delivery and 3) intra-tumoral molecular diversity (revealed by radiomics) in capturing and predicting this variable response to treatment. Specifically, I will highlight burgeoning insights into sex differences in tumor incidence, outcomes, propensity and response to therapy. I will further, quantify the degree to which heterogeneity in drug delivery, even for drugs that are able to bypass the blood-brain barrier, contributes to differences in treatment response. Lastly, I will propose an integrative role for spatially resolved MRI-based radiomics models to reveal the intra-tumoral biological heterogeneity that can be used to guide treatment targeting and management.

### Suggested Readings:

[See next page.](#)

## Suggested Reading List

- [Quantifying Uncertainty and Robustness in a Biomathematical Model Based Patient-Specific Response Metric for Glioblastoma](#)
- [Sex differences in GBM revealed by analysis of patient imaging, transcriptome, and survival data](#)
- [Accurate Patient-specific Machine Learning Models of Glioblastoma Invasion Using Transfer Learning](#)
- [Integration of Machine Learning and Mechanistic Models for Cell Density Mapping of Glioblastoma under Multiparametric MRI](#)
- [Sex-specific impact of patterns of imageable tumor growth on survival of primary glioblastoma patients](#)
- [The imaging of intratumoral heterogeneity in high-grade glioma](#)
- [Image-based metric of invasiveness predicts response to adjuvant temozolomide for primary glioblastoma](#)
- [Roadmap for clinical integration of radiomics in neuro-oncology](#)
- Deep learning for accurate, rapid, fully automatic measurement of brain tumor volume. *Journal of Medical Imaging, In Press*
- [Quantifying glioblastoma drug response dynamics incorporating treatment sensitivity and blood brain barrier penetrance from experimental data \(Preprint\)](#)
- [Predictors of Seizure in Contrast-Enhancing Gliomas at Clinical Presentation: A Network Approach \(Preprint\)](#)
- [Robust Automatic Whole Brain Extraction on Magnetic Resonance Imaging of Brain Tumor Patients Using Dense-Vnet \(Preprint\)](#)
- [Uncertainty Quantification in Radiogenomics: EGFR Amplification in Glioblastoma \(Preprint\)](#)