We live in an era of data deluge. Pervasive sensors collect massive amounts of information on every bit of our lives, churning out enormous streams of data in a wide variety of formats. Tremendous economic growth and improvement in quality of life can be achieved by analyzing such large volumes of data.

In this offering of the *Special Topics* course, we will review recent enabling advances in signal processing techniques for big data analytics. Starting from classical and contemporary big data models, key ideas in dimensionality reduction, big data processing algorithms, randomized learning, and network data inference will be discussed. Various application areas, such as communication networks, power grids, bioinformatics, and medical imaging, will be touched upon. Students will be encouraged to work on relevant projects dealing with real datasets to gain hands-on experience in big data analytics.

**Instructor:** Seung-Jun Kim (Assistant Professor, Dept. of CSEE, UMBC)

**Prerequisite:** Basic linear algebra, calculus, and probability. Proficiency in Matlab® and familiarity with detection/estimation and optimization will be helpful, but not required.

**Who should take this course:** Anyone in ENEE, CMSC, and CMPE programs with interest in data analytics, statistical learning, signal processing, and optimization. Students from other disciplines can also sign up upon the instructor’s consent.

For further information, e-mail to sjkim@umbc.edu or visit [http://www.csee.umbc.edu/~sjkim](http://www.csee.umbc.edu/~sjkim)