

Data MASTER: **Data-Driven Mathematics And Statistics** Training, Education, and Research

Data MASTER is a new program that aims at enhancing the data-driven computational skills for GW students. Funded by a new grant from the National Science Foundation, this program features research projects, faculty development and dissemination, and most importantly, enduring curricular enhancements based on computing with scientific real world data.

1. **QED Courses:** Students can choose among selected courses that emphasize on Quantitative Exploration of Data (QED). In addition to standard materials, each QED course will feature computation exercises and projects based on real data, which we will obtain from public domain or from other sources.
2. **Research Experiences.** Students in mathematics and statistics have the opportunity to conduct in-depth research involving data-driven computations through individual mentored research projects. Student interests will be matched with faculty researchers in mathematics, statistics, and other STEM fields. Eligible students may apply for research support.
3. **Data Master Certificates.** Each student who has taken at least three QED courses will receive a certificate indicating the successful completion of substantial number of QED courses. A student who has done exceptional work in data-driven computation (e.g. superior work in QED courses, outstanding research involving data-driven computation) will be issued a title of "Data Master" in the certificate.
4. **Seminar Series.** Other activities will include a new Data-Master seminar series, as well as a workshop series on Computational and Data-enabled Science and Engineering (CDS&E). More information will be available at our new website

Examples of QED courses:

- Math 4981: Topics on Complex Network (currently offered in Fall 2014, Y. Rong).
- CSCI 1111: Java programming (Spring 2015).
- Math 4981: Topics on Fourier analysis and wavelets (S. Roudenko).
- CSCI 4342: Computational linear algebra, Fall 2015 (R. Simha).
- Math 3359: Math modelling, Spring 2016 (M. Gupta).
- Math 4981: Topics on Data driven probability and statistics (M. Guldani)
- Stat 4198: Special topics in data/ statistics (Y. Lai)

Why Data MASTER? Daily we are experiencing an explosion of data, and this is shaping the landscape of our society. There is an urgent need to acquire data-driven computational skills to enter the workforce. A data-scientist creates tools that serve to interpret and analyze information coming from large data sets. This is a big open new field with many exciting job opportunities. We encourage you to explore.

The Data MASTER team:

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