AMSC/MATH 420, Spring 2014
First Project on Modeling Epidemics: Forecasting Future Epidemics

Oral presentation due Monday March 10
Written presentation due Friday March 14

Monthly data on AIDS diagnoses in various metropolitan areas (and the entire U.S.) is available at `http://wonder.cdc.gov/aids-v2002.html`. To download data for a particular city (and its metropolitan area), select "Month Diagnosed" in Section 1 next to "Group Results By", and select the city name in Section 2. Then click any of the "Send" buttons. Once the data appears, you can save the data to a file with the "Export" button, but it may be just as easy to copy-and-paste. In addition to selecting data by region, you can select by demographic information, risk factors, etc.; for now, let's stick to all diagnoses in a given region. From the monthly data, you can compute the cumulative number of diagnosed cases as a function of time.

Start by downloading monthly AIDS diagnoses data for the Boston and San Francisco reporting areas. The goals of this project are to develop and test methods for fitting parameters of a modified SIR model (to be discussed further in class) to the data in order to predict future diagnoses as well as possible, and to assess how well this model is able to predict the future of an epidemic from data collected during the epidemic – this will depend among other things on how early or late in the epidemic one is making the prediction. After working with your first two cities for a while, choose some other cities from the northeastern U.S. and see how broadly your methods and conclusions apply.