Meeting: 1003, Atlanta, Georgia, SS 29A, AMS Special Session on Mathematical Sciences Contributions to the Biomedical Sciences, I

1003-92-1716 **John Whitmarsh*** (whitmarj@nigms.nih.gov), Center for Bioinformatics and Computational Biology, Natl. Institute for General Medical Sciences, 4500 Center Drive, Bethesda, MD 20892-6200. *The Need for Mathematics in Biomedical Research.* Preliminary report.

The genomic era has transformed biology by providing scientists with massive sets of quantitative biological data. The datasets are comprised of genomic sequences that contain billions of nucleotides, atomic-level protein structures, intricate metabolic and neural networks, multidimensional arrays of transcripts and proteins, and more. Our ability to use these large datasets to understand life processes depends on developing dynamic multidisciplinary research teams. Mathematical and statistical models provide the foundation for the advancement of quantitative biology and are essential elements in developing the computational tools needed for archiving and analyzing large databases and developing models and simulating complex biological systems. To accelerate biomedical research the National Institutes of Health is engaged in efforts to bring mathematicians and statisticians into the core of biomedical research. I will discuss challenges facing biomedical researchers, describe fruitful collaborations between mathematicians and biologists, and discuss funding opportunities for mathematicians and statisticians at NIH. The end of the session will be open for questions. (Received October 14, 2004)