

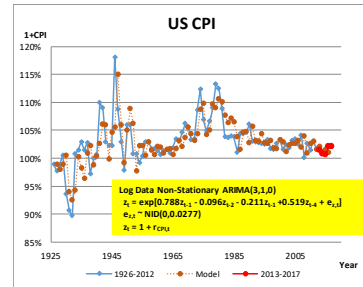
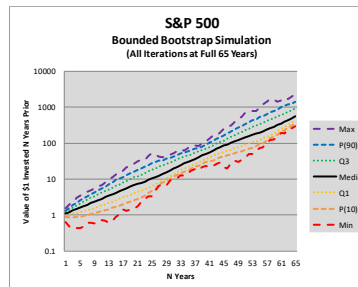
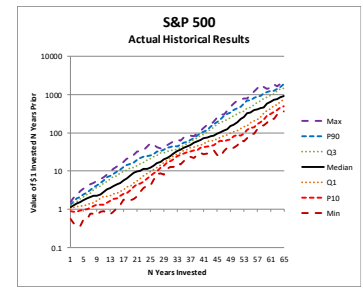
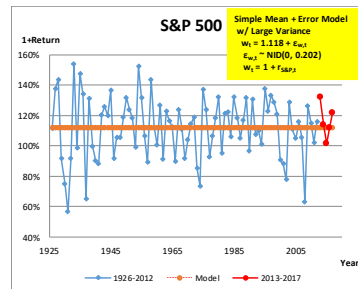
THE COLLEGE OF SCIENCES AND MATHEMATICS & THE R. W. YEAGY COLLOQUIUM PRESENT:

The most Widely Utilized Statistical Application in the World: Statistical Process Control (SPC)

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**Wednesday, September 20th @ 4:00pm,
Math Building 357**

Statistical Process Control, or SPC, is by far the most utilized statistical procedure known to man. Its origins trace back to Dr. Walter Shewhart, who in 1931, when working at Bell Labs, published his seminal work: *Economic Control of Quality of Manufactured Product*, where he proposed a very simple concept for controlling a process utilizing data produced in routine process operations. Soon after this work, engineers at Western Electric (a subsidiary of Bell Labs at the time) began to augment Dr. Shewhart's simple approach with some additional process control rules (WECO rules). However, widespread use of these approaches was not initiated until almost a half a century later when Japanese manufacturers such as Toyota, Nissan, Mitsubishi, etc. (using the Shewhart approach communicated to them by American University professor Dr. W. Edwards Deming and others) began taking significant worldwide automobile market share away from American producers Ford, General Motors, and Chrysler in the early 1980's. Then the use of SPC (as the Shewhart approach became to be known) provided a competitive market advantage for the Japanese; however, it did not take long for others to catch up, and now utilization of SPC is essentially a requirement for any manufacturer to even remain viable in their respective market. When I left Samsung Austin Semiconductor, 14 years ago now, there were 100,000 control chart observations being obtained and associated process control decisions being made every day, and that was just one of the smaller of 14 worldwide Samsung semiconductor operations at that time.

This talk will briefly describe the origins and history of SPC, then more fully examine a specific electronic connector gold plating process control problem I worked on at DuPont in the early 1980's. The various alternatives and motivations for such alternatives will be outlined leading from a simple Shewhart process control plan to a more advanced situational specific process control plan. This talk should be accessible to both undergraduate and graduate students, and should provide an example of how mathematical and statistical concepts can be applied to an actual production process.