Dr. Karl Peace, Professor of Biostatistics, Jiann-Ping Hsu College of Public Health at Georgia Southern University, recently gave a lecture to members of the Boys and Girls Club of Bulloch County. The title of the lecture was: “Numbers in Nature.” Dr. Peace spoke about the origin of elements of Golden Rectangle, Golden Ratio, and Golden Spirals and the related Fibonacci Series. The Golden Ratio and Rectangle date back to Euclid (300 BC) - The Father of Geometry. They occur when one divides a line segment into extreme and mean ratio and forms the quotient of the extreme to the mean, which equals 1.618. The rectangle formed with extreme as length and mean as width is said to be a Golden Rectangle. The Fibonacci Series (1,1,2,3,5,8,13,21,34,55,89, 144, …) is due to the Italian Mathematician Fibonacci (1170-1250). It may be shown that the series produced from the Fibonacci series by dividing one number by its predecessor converges to the Golden Ratio. Golden Spirals may be produced by dividing a Golden Rectangle into a square and a smaller (Golden) rectangle, then dividing the smaller rectangle into a square and a smaller (golden) rectangle, and continuing this process on and on. A Golden Spiral is produced by joining the endpoints of the interior squares from the smallest to the largest. Dr. Peace provided examples of natural manifestations and uses of elements of the Fibonacci Series and the related concepts of Golden Rectangle, Golden Ratio, and Golden Spirals. Several Golden Rectangles appear in Leonardo Da Vinci's painting Mona Lisa. The shape of the Sea Chambered Nautilus conforms to a Golden Spiral as do patterns in the galaxy and Milky Way. Fibonacci numbers occur often in nature; e.g. as the number of petals of many flowers and the number of seed patterns in the sunflower and pine cone. A modification of the Fibonacci series has been used for escalating chemotherapy doses in cancer patients. Dr. Peace surmised that the golden ratio, golden spirals and Fibonacci numbers are implicated in Nature preserving what is best in Nature.

The lecture was in follow-up to Dr. Peace’s previous lecture at the Club on: “Having Fun with Numbers.” Dr. Peace has worked with the Boys and Girls Club of Bulloch County in establishing an academic center and is a major donor to the Club in terms of time, talent and treasure.