1135-26-18 **George A Anastassiou*** (ganastss@memphis.edu), Dept. Mathematical Sciences, 3725 Norriswood Avenue, Memphis, TN 38016. *Principles of General Fractional Analysis for Banach space valued functions.* Preliminary report.

Here we present a general fractional analysis theory for Banach space valued functions of real domain. A series of general Taylor formulae with Bochner integral remainder is presented. We discuss the continuity of gen- eral Riemann-Liouville Bochner fractional integrals and we prove their semigroup property. Then we introduce the right and left generalized Banach space valued fractional derivatives and we establish the corre- sponding fractional Taylor formulae with Bochner integral remainders. Furthermore we study the iterated generalized left and right fractional derivatives and we establish Taylor formulae for the case, and we find in- teresting Bochner integral representation formulae for them. We study the differentiation of the left and right Riemann-Liouville fractional Bochner integrals. At the end we give Ostrowski type inequalities on this general setting, plus other interesting applications. (Received June 14, 2017)