

جمهورية العراق  
وزارة التعليم العالي والبحث العلمي  
الجامعة المستنصرية  
كلية التربية / قسم الرياضيات

# حول ثنائيات المشتقات المعممة والدوال

## المرتبطة

أطروحة

مقدمة إلى مجلس كلية التربية في الجامعة المستنصرية  
كجزء من متطلبات نيل درجة دكتوراه فلسفة في علوم الرياضيات

من قبل

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# Abstract

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Let  $R$  be an associative ring with center  $Z(R)$ . In this work, a universal study about the Generalized  $(\sigma, \tau)$ -Biderivations and related mappings is given, where  $\sigma, \tau$  are endomorphisms of  $R$ .

Along this study many concepts are presented, such as the notions of  $Y$ -homomorphism and anti  $Y$ -homomorphism of a biadditive mapping defined on an associative ring with identity, Symmetric Reverse  $*$ -Bicentralizer, dependent elements and free action mappings of the form  $\mathcal{F}(\cdot, \cdot): R \times R \rightarrow R$  and double Bicentralizer, also we shall give necessary remarks and examples that illustrate these concepts.

An inclusive study about each one of these concepts is given in the four chapters of this thesis.

Our aim in this thesis is to present new results concerning the relation between these mappings as a part and the existence activity of these mappings on the structure of the ring in another part. Furthermore, we investigate the necessary conditions that must be valid to get these results as well as we give several lemmas that will be needed in this direction.