

# Biomedical image processing: Fall 2010

## ***Time and Location:***

Monday PM 2:10~5:00 @ F3009

## ***Instructor:***

莊子肇, Assistant Professor

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Office hour: Tue PM 2-4; Thu AM 10-12 (by appointment)

## ***Prerequisites:***

信號與系統、數位訊號處理 (Optional)

## ***Textbooks/References:*** 請遵守智慧財產權觀念，不可非法影印

“Digital Image Processing”, Rafael C. Gonzalez and Richard E. Woods, Prentice Hall 2007 (3<sup>rd</sup> edition)

※此原文書由「歐亞圖書公司」代理 02-89121188，請洽黃國雄先生 0980081070

“Biosignal and Biomedical Image Processing: MATLAB-Based Applications”, John L. Semmlow, CRC 2004 (1<sup>st</sup> edition)

“Engineering Statistics”, Douglas C. Montgomery, George C. Runger, and Norma F. Hubele, Wiley 2006 (4<sup>th</sup> edition)

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## ***Schedule:***

9/13	Introduction
9/20	Digital image fundamentals
9/27	Histogram and intensity transformation
10/4	Image enhancement: filtering in spatial domain
10/11	Image enhancement: filtering in frequency domain
10/18	Image enhancement: restoration
10/25	Color image processing

11/1	Color image processing
11/8	Image segmentation
11/15	Image segmentation
11/22	Image registration
11/29	Image registration
12/6	Midterm
12/13	Statistics: random variables and probability distribution
12/20	Decision making: hypothesis testing
12/27	One-sample test and two-sample test
1/3	ANOVA analysis
1/10	Project report

***Optional topics:***

Morphological image processing

Image representation and feature extraction

Wavelets

Image reconstruction

***Grading:***

Homework 50%

Midterm 15%

Term project 35%