



# Microarray Data Analysis

The University of Toledo

BRIM Program in Bioinformatics & Proteomics/Genomics  
BIPG5500/7500 Microarray Analysis, Section 001, CRN #39960

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<b>Instructor:</b>	Sadik Khuder, PhD	<b>Class Location:</b>	Online Lectures
<b>Email:</b>	Sadik.Khuder@utoledo.edu	<b>Class Day/Time:</b>	Thursdays/8 AM
<b>Office Hours:</b>	Thursdays 3 pm	<b>Lab Location:</b>	127 HEB
<b>Office Location:</b>	0012 RHC	<b>Lab Day/Time:</b>	TBA
<b>Office Phone:</b>	419-383-4089	<b>Credit Hours:</b>	1cr hr
<b>Term:</b>	Summer 2015		

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## COURSE/CATALOG DESCRIPTION

This course provides hands-on training in the statistically-rigorous analysis of microarray data. Students will learn how to handle and analyze microarray data. Topics covered include preprocessing, identifying differentially expressed genes, classification and presentation of findings. Different platforms of microarray technologies will be covered in this course.

## STUDENT LEARNING OUTCOMES

Students will work with real data generated using different microarray platforms.

## PREREQUISITES AND COREQUISITES

None

## REQUIRED TEXTS AND ANCILLARY MATERIALS

There is no required text for this course. All the required materials will be available on the course web site. Readings will consist of original literature, review articles, and R based books (available free online).

## UNIVERSITY POLICIES

Policy Statement on Non-Discrimination on the basis of Disability (ADA)

The University is an equal opportunity educational institution. Please read [The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.](#)

## ACADEMIC ACCOMMODATIONS

The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the [Student Disability Services Office.](#)

## ACADEMIC POLICIES

This course follows the main UT policies.



## **GRADING**

A written report about statistical analysis of a specific microarray dataset, and a PowerPoint (or equivalent software) presentation, are required.

## **COURSE SCHEDULE**

Lecture 1 (1 hour)	Microarray technologies
Lab #1 (2 hours)	Microarray Data acquisition
Lecture 2 (1 hour)	Preprocessing microarray data
Lab #2 (2 hours)	
Lecture 3 (1 hour)	Identifying differentially expressed genes
Lab #3 (2 hours)	
Lecture 4 (1 hour)	Annotation
Lab #4 (2 hours)	Multivariate techniques
Lab #5 (3 hours)	Putting all together / assigned real microarray data sets

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