

Biological Image Analysis

Fall 2017

CS-69995-020-201560: ST: BIOLOGICAL IMAGE ANALYSIS

276 MSB

Friday 2:15 to 5 pm

Instructor

Dr. C.C. Lu

Office: MSB

Office phone: 672-9980

Email: luc@cs.kent.edu

Office Hours: By Appointment

Project Expert

Dr. Robert Clements

Office: A311D Cunningham Hall (annex)

Office phone: 672-2720

Email: rclement@kent.edu ,

Office Hours: By Appointment

Course information: This course will focus on the analysis of biological images with specific attention paid to multi-dimensional microscopy data, MRI and additional biologically relevant images. Automated image analysis and processing techniques will be covered as well as issues and artifacts associated with analyzing biologically relevant images. Students will be assigned into groups and expected to create working and releasable software to process a subset of biological images as the end product of the course.

Lectures: You are expected (and highly advised) to attend all lectures and presentations since material presented during class is required for completing final projects. If you must miss a class, be certain to obtain notes from a dependable classmate. Material may come quickly, so keeping up is essential. If you do not understand something discussed in lecture, make an appointment and ask for extra help or ask questions during class.

Expectations: There will be three in-class group presentations, a final project report and software that will be due on the last day of the course. Presentations, the final report and software functionality will each count for 1/3 of the final grade.

Grading: The grading scale will be as follows: 90%-100% = A; 80%-89% = B; 70%-79% = C; 60%-69% = D; < 60% = F.

Academic dishonesty: Cheating, plagiarism, or any other forms of academic dishonesty will not be tolerated. Anyone found guilty of violating these rules will receive a failing grade for the course. See Policy #3342-3-07 for specifics.

Students with disabilities: In accordance with University policy, if you have a documented disability and require accommodations to obtain equal access to this course, please contact the instructor at the beginning of the semester or when given an assignment for which an accommodation is required. Students with disabilities must

verify their eligibility through Student Accessibility Services in the DeWeese Center (672-3391).

Note: The instructors reserve the right to make changes to the syllabus. All modifications will be announced during class and are binding.

WEEK	TOPIC
1	
09/1/17	Introduction Image Enhancement
2	
09/8/17	ImageJ
3	
09/15/17	Project Descriptions Past Results
4	
09/22/17	Parallel Image Processing Project Presentation
5	
09/29/17	Image Segmentation Project Presentation
6	
10/6/17	Frequency Domain Processing Project Presentation
7	
10/13/17	Skew Correction Project Presentation
8	
10/20/17	Machine Learning Project Presentation
9	
10/27/17	Image Compression Project Presentation
10	
11/3/17	Project Presentation
11	
11/10/17	Veteran's Day Observed - No Class
12	
11/17/17	Project Presentation
13	
11/24/17	Columbus Day Observed – No Class
14	
12/1/17	Project Presentation

15	
12/8/17	<i>Final Student Presentations Project Report/Software Due</i>