

Instructor: DR. JEN-MEI CHANG

Office : FO3-115

Office Phone: 562-985-1811

E-mail: jchang9@csulb.edu

Course url: http://www.csulb.edu/~jchang9/m479_579modeling.htm

Class Mtg: Section 1 Seminar, Code 6557. Tu/Th 5:30pm- 6:45pm, LA5-349.

Office Hours: W 1:00pm - 2:00pm; Tu/Th 2:30pm - 3:20pm; and by appointment.

Prerequisites: A grade of “C” or better in MATH 247, 364A or 370A, 323, one programming course, and one additional mathematics course, or consent of instructor.

Text: There is no required text for this course. The following resources are recommended for backgrounds in image processing and scientific computing.

1. *Digital Image Processing*, 3rd edition, by R. Gonzalez and R. Woods. ISBN-13: 978-0131687288.
2. *Digital Image Processing Using MATLAB(R)*, by R.Gonzales, R. Woods, and S. Eddins. ISBN-13: 978-0130085191.
3. *Matrix Methods for Geometric Data Analysis and Pattern Recognition*, by J.-M. Chang. Free download via <http://www.csulb.edu/~jchang9/files/MatrixMethodsMain.pdf>

Objectives: Develop models of phenomena in human placenta imaging analysis. Implementations of theoretical results in MATLAB.

E. Outcome: Students will develop essential skills required to be successful in an industrial setting such as the abilities to team-work, meet deadlines, and cope with frustrations; develop an ownership of programming skills in MATLAB; and produce professional-level reports and presentations.

Software: You will be writing programs in MATLAB to test your theories. Both LA5-251 and LA5-349 PC labs have MATLAB installed on them. A collection of 10 toolboxes are also installed on selected stations in both labs. MATLAB & Simulink Student Version is available for around \$100 and can be used as long as you have a .edu account. When needed, your large-scale computations can be done on a 8 quad-core Intel Processor Blade Cluster named Pyramid (pyramid.cnsm.csulb.edu) administered by me.

Hardware: You might need a binder to store all of your reference papers and required documents. Personal laptops might be available for check out in LA5-251 as well as from me.

Evaluations:

- Your grade will be based on your performance in the following areas.
 - (a) Amount of (meaningful) participation in the online forum discussions.
 - (b) Amount of (meaningful) contribution to the following required documents: (1) weekly progress report that describes what you and your group have done as well as your plan; (2) a detailed bibliography along with a brief overview of each category of the references and how you intend to use these references in your research¹; (3) a 15-minute mid-term oral presentation on your progress; (4) a 15-minute final presentation that summarizes your research results; and (5) final report and deliverables such as MATLAB codes and GUIs.

¹See an example here: <http://www.csulb.edu/~jchang9/OnlinePapers/SetToSetClassification.htm>

- All documents and reports need to be produced in the professional editing software, L^AT_EX². I expect a high level of professionalism on these reports including detailed descriptions explaining your reasonings. A few things should be kept in mind when generating your reports:
 - (a) Label your graphs. Include brief figure captions. Reference the figure in the text with a more detailed account of the figure.
 - (b) Label all equations that will be referenced later.
 - (c) Provide references where appropriate! You can never over-cite; but if you under-cite, you might accidentally get yourself in trouble with a colleague.
 - (d) If you include codes in your report, they should be shuffled to Appendixes. Reference it when necessary.
 - (e) Always remember: this report is being written for YOU! So be clear and concise. Give enough details so that if you were to read it two years later, you would still know what everything means.
 - (f) Spell check.

An example of an excellent report can be found on the website: http://www.csulb.edu/~jchang9/m695projects/m695_sp10_FinalReport_Minh_Angela.pdf

Remarks:

- Class attendance is strongly recommended and required for presentations. Your attendance and in-class participation will be used to determine your final grade at the end of the semester. After all, you did pay for your seat in the class.
- Any office hour may be canceled due to illness or necessary appointments, and students should not therefore depend on the faculty being in his or her office for a particular office hour. Students thus should secure any necessary signatures or other requirement well in advance of any deadline.
- Please refer to the university policy and deadlines for adding and withdrawals:
http://www.csulb.edu/depts/enrollment/dates/registration_spring.html
It is the student's responsibility to withdraw from classes. Instructors have no obligation to withdraw students who do not attend courses, and may choose not to do so.
- If you received permission to register for a closed class section, only you can enroll for the course. It is the student's responsibility to complete the registration process before the dates indicated in the Schedule of Classes.
- Request for special need for accommodation of a University verified disability should be submitted within the first two weeks with all necessary documentation.
- The instructor reserves the right to alter anything on this syllabus at any time during the semester.
- Respect your classmates and yourselves. Suggestions and comments are always welcome and strongly encouraged. Be an active learner! Ask lots of questions and answer lots of questions in class. The best way to learn math is by doing it and explaining to others.

²Get started here: <http://www.csulb.edu/~jchang9/LaTeXtemplate.zip>