

Selected Topics in Applied Mathematics

Applied and Comp Math 990

Section: G100

Term: 2011 Spring

Instructor:

Steve Ruuth, Room: K10537, Mathematics

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Discussion Topics: Course description:

This course will introduce students to a number of problems in image processing and describe how they can be solved using modern techniques based on the calculus of variations and partial differential equations. Topics will be selected from image restoration (e.g., de-noising, de-blurring, inpainting...), image segmentation (e.g, active contours, the Mumford Shah model of image segmentation,...) and image registration. Relevant mathematical and numerical techniques such as variational calculus and level set methods will be introduced as part of the course.

Grading: Grades will be assigned based on short problem sets and a larger project.

Required Texts: The lectures will not follow one particular textbook. The topics presented will be selected from a variety of texts and research papers.

Recommended Texts:

Materials/Supplies:

Prerequisite/Corequisite: Some undergraduate differential equations and numerical analysis, or permission of the instructors.

Notes: Lectures start Wednesday, January 12, 2011.

THE INSTRUCTOR RESERVES

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RIGHT TO CHANGE ANY OF THE ABOVE

INFORMATION.

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Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.

This outline is derived from a course outline repository database that was maintained by SFU Student Services and the University's IT Services Department. The database was retired in 2014 and the data migrated to SFU Archives in 2015.