

SYDE 575 Image Processing Fall 2014

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Text: **Digital Image Processing**, 3rd edition, by Rafael C. Gonzalez and Richard E. Woods, Pearson Prentice-Hall, 2008.

Lectures: Tuesday 9:30-11am, Thursday, 11:30am-1pm, E5-6004

Tutorial: Thursday, 10:30-11:30am, E5-6004

Lab: Wednesdays, 1:30-4:30pm, E2-1306

Website: <http://www.eng.uwaterloo.ca/~dclausi/sd575.html>

Expectations:

1. Problems will be provided as the course proceeds, but will not be collected or marked. If you have difficulty with the problems, consult the TA or instructor. Solutions will be provided at a later date, after you have had a try to solve them. Some solutions will also be presented during tutorials.
2. There is one introductory lab (not graded) plus five graded labs. Lab reports will be required and will comprise 20% of the final mark. Labs should be completed in groups of two or three (two is probably best). The grade of each lab will be reduced by 20% for each full or partial day late submission.
3. A mid-term exam worth 30% will be held on Thursday October 30 during combined tutorial and class time (1.5 or 2 hours).
4. A final exam during the December exam period will comprise the remaining 50%.

Course Outline

<u>Topic</u>	<u>Basic Readings</u>
I. Introduction	1 & 2
II. Point Operations	3.1-3.3
III. Spatial Filters	3, 10.2
IV. Spatial-Frequency Filters	4
V. Restoration	5

VI. Color Image Processing	6
VII. Segmentation	9,10
VIII. Image and Video Compression	8
IX. Wavelets (time permitting)	7
X. Representation (time permitting)	11

Institutional Requirements for Course Outline

All course outlines in the Faculty of Engineering require the following verbatim boiler-plate statements.

Academic Integrity: In order to maintain a a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check www.uwaterloo.ca/academicintegrity/ for more information.]

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity [check www.uwaterloo.ca/academicintegrity/] to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties check Guidelines for the Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.html.

Appeals: A decision made or penalty imposed under Policy 70 (Student Petitions and Grievances) (other than a petition) or Policy 71 (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

Note for Students with Disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.