GE CRITERIA APPROVAL FORM

Course Number and Title: PHYS/COMP/MATH 345 Digital Image Processing

Faculty Member(s) Proposing Course: Geoff Dougherty

Indicate which of the following categories would be satisfied by this course by marking an "X" on the appropriate lines. Courses may be placed in up to two GE categories as appropriate. Upper Division Interdisciplinary GE courses may be placed in two categories plus the UDIGE category.

	A1: Oral Communication
	A2: English Writing
	A3: Critical Thinking
X	B1: Physical Sciences
	B2: Life Sciences
	B3: Mathematics
X	B4: Computers and Technology
	C1: Fine Arts
	C2: Literature
	C3: Languages & Cultures
	D: Social Perspectives
	E: Human Psychological & Physiological Perspectives
X	Upper Division Interdisciplinary GE

Lab Included? Yes __X____ No _____

Please provide a brief explanation of how the proposed course meets <u>each</u> of the criteria for the selected General Education categories.

This course is **GE** because of its breadth and applicability: students taking it will acquire the skills, experience and knowledge "appropriate to educated people within our society". It requires a minimal background in calculus and some programming experience.

It satisfies the **B1** criteria on content by
- presenting the principles and concepts of physics in the acquisition and characterization of images.

It satisfies the **B4** criteria on content by
- using computer software to manipulate and process images.

Reasoning skills are addressed by
- analyzing and comparing the quality of images
- deciding upon the appropriate schemes for enhancing and restoring various images
- constructing and implementing various processing algorithms

The course promotes
- an understanding of logical methodologies
- the application of basic concepts to complex and diverse scientific problems

In addition to meeting Category A-E criteria as appropriate all Upper Division Interdisciplinary GE courses shall:

- Emphasize interdisciplinarity by integrating content, ideas, and approaches from two or more disciplines.

→ This course is an example of connecting the disciplines of physics, math and computer science in a most explicit manner, and in a way that focuses on examples from these disciplines and beyond. The course encompasses B1, B3 and B4 but our rules only allow two of these to be listed. The course explicitly covers content from Computer Science (approaches, algorithms, ways of thinking) and does not merely use computers as tools.

- Include substantive written work consisting of in-class writing as well as outside class writing of revised prose.

→ Each student is required to provide a written report on a term project on particular image processing strategies. The report will consist of both in-class writing and outside writing of revised prose on a topic, and each report will be discussed in the class.