



**ROCHESTER INSTITUTE OF TECHNOLOGY
COURSE OUTLINE FORM**

COLLEGE OF SCIENCE

Chester F. Carlson Center for Imaging Science

NEW COURSE: COS-IMGS-609- Graduate Laboratory I

1.0 Course Approvals

Required course approvals:	Approval Requested Date:	Approval Granted Date:
Academic Unit Curriculum Committee	9/1/2010	9/15/2010
College Curriculum Committee	10/1/2010	10/14/2010
Optional course designation approvals:		
General Education Committee		
Writing Intensive Committee		
Honors		

2.0 Course information:

Course title:	Graduate Laboratory I
Credit hours:	1
Prerequisite(s):	Graduate standing in Imaging Science
Co-requisite(s):	COS-IMGS-619
Course proposed by:	John R. Schott & Emmett Ientilucci
Effective date:	September 2013

	Contact hours	Maximum students/section
Classroom		
Lab	3	20
Studio		
Other (specify)		

2.1 Course Conversion Designation (Please check which applies to this course)

	Semester Equivalent (SE) Please indicate which quarter course it is equivalent to:
	Semester Replacement (SR) Please indicate the quarter course(s) this course is replacing:
X	New

2.2 Semester(s) offered (check)

Fall	√	Spring	Summer	Other
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All courses must be offered at least once every 2 years. If course will be offered on a bi-annual basis, please indicate here:

2.3 Student Requirements

Students required to take this course: Students pursuing the PhD in Imaging Science

Students who might elect to take the course: Graduate students in engineering or other science programs.

3.0 Goals of the course (including rationale for the course, when appropriate):

To illustrate the material in the required first-semester courses in Imaging Science, particularly Radiometry.

4.0 Course description (as it will appear in the RIT Catalog, including pre- and co-requisites, and quarters offered). Please use the following format:

COS-IMGS-609

Graduate Laboratory I

This laboratory course is intended to familiarize students with the concepts considered in the required Radiometry course. Students work with a variety of radiometry hardware in a laboratory to perform measurements and experiments in topics such as radiation detection and propagation, source and instrument calibration, and calibration and use of a camera as a radiometer. (Co-requisite: COS-IMGS-619) **Lab 3, Credit 1 (F)**

5.0 Possible resources (texts, references, computer packages, etc.)

None

6.0 Topics (outline):

- 6.1 Sample Experiments
 - 6.1.1 Construction of a radiometer
 - 6.1.2 Radiometer behavior
 - 6.1.3 Transfer of calibration standards
 - 6.1.4 Detector response calibration
 - 6.1.5 Spectral radiometry
 - 6.1.6 Diffraction gratings
 - 6.1.7 Source distribution temperature
 - 6.1.8 Inverse square law
 - 6.1.9 Lens falloff
 - 6.1.10 BRDF
 - 6.1.11 Area sources
 - 6.1.12 Turbid media effects

7.0 Intended course learning outcomes and associated assessment methods of those outcomes

Course Learning Outcome	Lab reports
Demonstrate the concepts of radiometric calibration of source and detector standards and the use of radiation propagation principles.	X

8.0 Program outcomes and/or goals supported by this course

Equipping new graduate students with tools and resources to successfully complete their

graduate study and prepare them for an academic or professional career in Imaging Science.

9.0

	General Education Learning Outcome Supported by the Course	Assessment Method
<i>Communication</i>		
	Express themselves effectively in common college-level written forms using standard American English	
	Revise and improve written and visual content	
	Express themselves effectively in presentations, either in spoken standard American English or sign language (American Sign Language or English-based Signing)	
	Comprehend information accessed through reading and discussion	
<i>Intellectual Inquiry</i>		
	Review, assess, and draw conclusions about hypotheses and theories	
	Analyze arguments, in relation to their premises, assumptions, contexts, and conclusions	
	Construct logical and reasonable arguments that include anticipation of counterarguments	
	Use relevant evidence gathered through accepted scholarly methods and properly acknowledge sources of information	
<i>Ethical, Social and Global Awareness</i>		
	Analyze similarities and differences in human experiences and consequent perspectives	
	Examine connections among the world's populations	
	Identify contemporary ethical questions and relevant stakeholder positions	
<i>Scientific, Mathematical and Technological Literacy</i>		
	Explain basic principles and concepts of one of the natural sciences	
	Apply methods of scientific inquiry and problem solving to contemporary issues	
	Comprehend and evaluate mathematical and statistical information	
	Perform graduate-level mathematical operations on quantitative data	
	Describe the potential and the limitations of technology	
	Use appropriate technology to achieve desired outcomes	
<i>Creativity, Innovation and Artistic Literacy</i>		
	Demonstrate creative/innovative approaches to course-based assignments or projects	
	Interpret and evaluate artistic expression considering the cultural context in which it was created	

10.0 Other relevant information (such as special classroom, studio, or lab needs, special scheduling, media requirements, etc.)

Small group laboratory rooms.

11.0 Supplemental information for Optional Course Designations: If the course is to be considered as writing intensive or as a general education or honors course, include the sections of the course syllabus that would support this designation.

None.