



**ROCHESTER INSTITUTE OF TECHNOLOGY  
COURSE OUTLINE FORM**

**COLLEGE OF SCIENCE**

**Chester F. Carlson Center for Imaging Science**

NEW COURSE: COS-IMGS-830 – Advanced Topics in Remote Sensing

**1.0 Course Approvals**

<b>Required course approvals:</b>	<b>Approval request date:</b>	<b>Approval granted date:</b>
Academic Unit Curriculum Committee	8/16/10	9/15/10
College Curriculum Committee	9/28/2011	11/1/11

<b>Optional designations:</b>	<b>Is designation desired?</b>	<b>*Approval request date:</b>	<b>**Approval granted date:</b>
General Education:	No		
Writing Intensive:	No		
Honors	No		

**2.0 Course information:**

<b>Course title:</b>	Advanced Topics in Remote Sensing
<b>Credit hours:</b>	3
<b>Prerequisite(s):</b>	COS-IMGS-723 or permission of instructor
<b>Co-requisite(s):</b>	None
<b>Course proposed by:</b>	Anthony Vodacek
<b>Effective date:</b>	Fall 2013

	<b>Contact hours</b>	<b>Maximum students/section</b>
Classroom	3	25
Lab		
Studio		
Other (specify)		

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

<input type="checkbox"/>	Semester Equivalent (SE) Please indicate which quarter course it is equivalent to:
<input type="checkbox"/>	Semester Replacement (SR) Please indicate the quarter course(s) this course is replacing:
<input checked="" type="checkbox"/>	New

## 2.2 Semester(s) offered (check)

Fall	Spring X	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:** None

**Students who might elect to take the course:**

Graduate students in Imaging Science Remote Sensing track. Graduate students in the College of Science or College of Engineering.

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

3.1 Provide advanced knowledge in a variety of remote sensing modalities, and radiometric and multispectral analysis of remotely sensed images and quantitative sensing systems

3.2 Provide capability for conducting quantitative analysis of remotely sensed images

## 4.0 Course description

### IMGS-830

### Advanced Topics in Remote Sensing

This course is an in-depth examination of emerging techniques and technologies in the field of remote sensing at an advanced level. Examples of topics, which will differ each semester, are typically formed around a specific remote sensing modality such as lidar, polarimetry, radar, and hyperspectral remote sensing. (COS-IMGS-723 or permission of instructor) **Class 3, Credit 3 (S)**

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

Varies by topic.

## 6.0 Topics (outline):

The specific imaging modality varies, e.g., light detection and ranging (lidar), polarimetry, radar, and hyperspectral remote sensing. Components common to all modalities are:

6.1 A description of object and radiation interactions

6.2 Sensor hardware and image and data collection techniques

6.3 Appropriate detectors, and sampling and quantization

6.4 Data reduction and processing

6.5 Visualization, analysis, and information extraction

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

Course Learning Outcome	Homework assignments	Exams
Describe and formulate equations of radiative transfer	X	X
Apply appropriate algorithms for information extraction	X	X

**8.0 Program outcomes and/or goals supported by this course**

- |     |   |
|-----|---|
| 8.1 | Demonstrate capabilities of a variety of advanced remote sensing techniques.                |
| 8.2 | Assess and apply techniques and algorithms to data from advanced remote sensing modalities. |

**9.0** N/A

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

Smart classroom
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