Rowan College at Burlington County
Summer 2018

Division of Science, Math, and Technology

Course Title: Fundamentals of Remote Sensing
Credits: 3
Class Meeting Information:
Instructor: TBD
Office Location: TBD
Office Hours: by appointment
Telephone Number:
Email:
Webpage:

SECTION 1: Course Information

Course Description

This course focuses on the principles of remote sensing and image processing and their applications. It concentrates on aerial photography but includes satellite imagery. It details the physical principle upon which a variety of photographic and non-photographic sensors operate describes the existing satellite systems used for remote sensing describes the principles behind image interpretation and provides instruction with computer programs.

Required Text and other Materials

Remote Sensing of the Environment, John R. Jensen, Prentice Hall, 2000
Additional information on class topics can be viewed on the Internet at
http://geoinfo.amu.edu.pl/wpk/rst/rst/Front/overview.html (The Remote Sensing Tutorial (RST)).

Course Learning Outcomes

- Describe and explain basic concepts in remote sensing
- Describe the various satellites used in the collection of remotely sensed data
- Recognize and measure real-world features on aerial photographs
- Demonstrate the principle behind image correction
- Perform analysis on remotely sensed data
- Demonstrate an ability to integrate a remotely sensed image into a GIS project
- Describe the applications in which remotely sensed data can be applied

General Education Outcomes

- Students will logically and persuasively support their points of view or findings.
- Students will analyze data to solve problems utilizing appropriate mathematical concepts
- Students will logically solve problems using the appropriate mathematical technique.
- Students will demonstrate critical thinking skills in the analysis of scientific data.
- Students will use critical thinking skills for computer-based access, analysis, and presentation of information.

Core Course Content

- Introduction to remote sensing
- Electromagnetic Radiation
- Aerial Photography
- Photogrammetry
- Satellites and Sensors
- Types of Digital Images
- Enhancement of Digital Images
- Applications of Remote Sensing
- Future of Remote Sensing

SECTION 2: Course Policies

Course and Classroom Policies

This class will be run as a directed study class. All communications between the student and the instructor will primarily be done through email. In-person meetings will be done regularly to evaluate progress, review class assessments, assistance with class exercises, and to discuss any questions or issues.

Lecture notes, assignments, and lab activities will be provided through email and exams will be completed in the test center on the Mt. Laurel campus. It is the student's responsibility to thoroughly read all lecture notes provided, textbook readings, and initiate questions if any arise.

Attendance Policy:
Due to the nature of this course (directed study), the student and instructor will meet regularly at a mutually convenient time. Additional meeting time will be allowed during the semester, if necessary.

Assignment Late Policy:
Assignments are due during class on the scheduled due date.
Assignments may be submitted late but will be penalized as follows:
25% off if turned in one day after the assignment was due; and
50% off if turned in two days after the assignment was due.

Assignments will not be accepted after the second day of the scheduled due date (these are business days, NOT class days).

Late assignments may be submitted in the following methods:
Hand submitted during office hours;
Placed in my mailbox at the main office of the Division of Math, Science, and Technology on the second floor of the Parker Center (you must have the secretary sign and date the assignment); or
Placed in my mailbox on the table located outside of my office

Criteria for Grade Determination

You will be evaluated based on several components. The percentage each component will contribute to your final grade is shown below:

Tests	50%
Course exercises	30%
Assignments	20%

The following grade scale will be used:

A	=	90% - 100%
B+	=	87% - 89%
B	=	80% - 86%
C+	=	77% - 79%
C	=	70 – 76%
D	=	60% - 69%
F	=	59% and below

Assessment Methods

Tests (50%)
There will be two tests in this course. Each test will cover information pertaining to the course material prior to each exam. Tests will be taken in the test center during a pre-arranged time frame.

Course exercises (30%)
Several course exercises will be provided to allow for hands-on training utilizing remote sensing technology and analytical concepts. These exercises will be conducted during the pre-arranged meeting time between the instructor and the student, though additional time may be granted, if necessary. Course exercises will be completed and submitted to the instructor for evaluation and grading.

Assignments (20%)

Assignments will be given on topics learned throughout the semester. These assignments may include research projects, reports on current events that demonstrate the utilization of remote sensing products or processes, worksheets, or other similar type of assignment. Additional information on class assignments will be provided at a later date.

Course Schedule *(subject to change)*

DATE	LECTURE TOPIC	CHAPTER	LABORATORY
Week 1	Class Introduction	1	Introduction to Remote Sensing
		(RST: Introduction)	
	Electromagnetic Spectrum	2	Reflectance Curves
Week 2		(RST: EM Spectrum)	
	Aerial Photography	4 / 5	ID of Features
		(RST: Section 10)	
	Photogrammetry	6	Stereoscopy and Measurements
		(RST: Section 10)	
	Satellites and Sensors		Intro to Image Analyst
Week 3			
	Digital Images	7	Image Processing
		(RST: RS Systems)	
	Radiometric and Geometric Correction	7	Image Processing
		(RST: Section 1)	
	(TEST I)		
Week 4			
	Image Enhancement	(RST: Section 1)	Image Enhancement (Do enhancement and unsupervised class)
	Thermal Sensing	8	Analyzing Thermal Images
		(RST: Section 9)	
	Exam II		No Lab
Week 5	RADAR Sensing	9	Analyzing RADAR Images
		(RST: Section 8)	
	Applications	10	Environmental Change
	Urban/Environmental	12	
	Future Trends	(RST: Section 15)	Remote Sensing and GIS
		(RST: Section 21)	
	(Test 2)		

SECTION 3: College Information

College Policies

In order for students to know their rights and responsibilities, all students are expected to review and adhere to all regulations and policies as listed in the College Catalog and Handbook. These documents can be accessed at http://www.bcc.edu/academic-resources. Important policies and regulations include, but are not limited, to the following:

- College Attendance Policy
- Grading Standards
    - Withdraw (W) and Incomplete Grades (I & X)
    - Withdrawal date for this semester
- Student Code of Conduct
    - Academic Dishonesty/Plagiarism and Civility
- Use of Communication and Information Technology

Office of Student Support and Disability Services

BCC welcomes students with disabilities into the college's educational programs. Access to accommodations and support services for students with learning and other disabilities is facilitated by staff in the Office of Student Support (OSS). To receive accommodations, a student must contact the OSS, self-identify as having a disability, provide appropriate documentation, and participate in an intake appointment. If the documentation supports the request for reasonable accommodations, the OSS will provide the student with an Accommodation Plan to give to instructors. For additional information, please contact the Office of Student Support at 609-894-9311, ext. 1208, disabilityservices@bcc.edu, or http://www.bcc.edu/studentsupport.

Educational Technology Statement

Burlington County College (BCC) advocates the use of technology to enhance instruction. Students should assume that classroom and online technology will be used throughout their coursework at BCC, as it will most certainly be used in their future education and careers. The College provides on-campus facilities for the convenience of the BCC community. Various college departments, including the Office of Information Technology and the Office of Distance Education, provide technology training and assistance to faculty and students.

Student Success Services

BCC offers a variety of free services for its students including those listed below. Descriptions of these services, as well as many others, can be found in the College Catalog and Handbook and on the BCC website at http://www.bcc.edu/pages/109.asp.

- Academic Advisement (http://www.bcc.edu/advising)
- Career Services (http://www.bcc.edu/careers)
- Educational Opportunity Fund (EOF) (http://www.bcc.edu/eof)
- Financial Aid (http://www.bcc.edu/financialaid)
- International Students Office (http://www.bcc.edu/international)
- Library/Integrated Learning Resource Center (ILRC) (http://www.bcc.edu/library)
- Office of Veteran Services (http://www.bcc.edu/vets)
- Student Support Counseling (http://www.bcc.edu/cpit)
- Tutoring Center (http://www.bcc.edu/tutoring)
- Test Center (http://www.bcc.edu/testcenter)
- Transfer Services (http://www.bcc.edu/transfer)